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THE BUPRESTIDAE OF NORTH CENTRAL MEXICO (COLEOPTERA)

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This paper is based primarily on material collected on the David Rockefeller Mexican Expedition of the American Museum of Natural History (Spieth, 1950) but also includes all the species previously recorded from north central Mexico. The area covered includes the states of Chihuahua, Durango, Zacatecas, and Coahuila, but all Mexican records for each species are given.

The expedition and the resulting studies of the material are being made with the view to obtaining a better knowledge of the relationship between the insect faunas of southwestern United States, of southern Mexico, and of the intervening area in northern Mexico. The present study covers 17 genera and 81 species, seven of which are herein described as new. Nine (53.0%) of the genera are primarily Neotropical, four (23.5%) are common to Mexico and the southwestern United States, and four (23.5%) are practically world wide in distribution. In the species, 13 (16.0%) are common to the Neotropics and north central Mexico, 19 (23.4%) are endemic in north central Mexico, 42 (51.9%) occur in southwestern United States and north central Mexico, and seven (8.6%) are found in all three regions. Generically the buprestid fauna is therefore predominantly Neotropical, whereas specifically over half are also found in the United States. Of the 42 species known to occur in both north central Mexico and southwestern United States, 11 also occur in Sonora, six in both Sonora and Baja California, and five in Baja California. Of the 13 Neotropical species, one is found on the tip of Baja California.

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Distributional maps are given for 19 species, to show the details and the relationships between the faunas. No attempt has been made to give the complete distributions in the United States, but those localities having a bearing on this study are indicated by spots. In Mexico the localities are indicated by numbers, which are identified in the text by similar numbers after each locality name. Where the species occur in areas not shown on the maps these extensions are indicated by arrows.

I would like to express my thanks to Dr. Balfour-Browne of the British Museum (Natural History) for aid rendered in the identification and examination of Mexican species not contained in our collections; also to Miss Alice Gray and Mrs. Patricia Vaurie for assistance in making the maps and to Miss Marjorie Statham for the illustrations. Continued thanks are extended Mr. and Mrs. George M. Bradt for making available much Mexican material collected before, during, and after the David Rockefeller Mexican Expedition. Special thanks are due Dr. David Rockefeller, who not only made possible the 1947 expedition, but whose continued support has enabled us to procure additional material required for the study of these faunas.

KEY TO THE GENERA

1. Scutellum visible.....2
- Scutellum not visible.....*Acmaeodera* 3
2. Antennae received in grooves on sides of prosternum.....7
- Antennae not received in grooves on sides of prosternum.....*Brachys* 4
3. Prosternal process deeply longitudinally grooved.....4
- Prosternal process not deeply longitudinally grooved.....*Paradomorphus* 5
4. Femora serrate on inner margin.....6
- Femora not serrate on inner margin.....*Pachyschelus* 6
5. Prosternal process narrow and acutely pointed behind and between anterior coxae; form elongate, narrow.....7
- Prosternal process broad, not acutely pointed behind and between anterior coxae; form robust, rounded.....*Paragrillus* 8
6. Prosternum deeply grooved along anterior margin; prosternal process not constricted by anterior coxal cavities.....*Taphrocerus* 9
- Prosternum not grooved along anterior margin; prosternal process constricted by anterior coxal cavities.....*Actenodes* 8
7. Third tarsal segments with apices prolonged laterally.....9
- Third tarsal segments with apices not prolonged laterally, usually truncate.....*Paratyndaris*

9. First and second tarsal segments without squamose pads beneath.....*Polycesta*
- First four tarsal segments with squamose pads beneath.....10
10. Tarsal claws toothed.....*Agrilus*
- Tarsal claws simple.....11
11. Mesosternum not divided medially by groove for prosternal projection.....*Thrincopyge*
- Mesosternum divided medially by groove for prosternal projection.....12
12. Prosternal process truncate or obtusely rounded at apex.....13
- Prosternal process pointed or acute at apex.....14
13. Antennal segments 4-10 deeply serrate, segments wider than long, outer edge rounded.....*Agaeocera*
- Antennal segments 4-10 shallowly serrate, segments longer than, or as long as, wide, outer edge truncate or with margin straight but obliquely constricted.....*Psiloptera*
14. Prosternal process greatly expanded laterally behind anterior coxae, expanded portion acute at apex and overlapping mesosternum.*Chrysobothris*
- Prosternal process not, or but slightly, expanded laterally behind anterior coxae and not overlapping mesosternum.....15
15. Hind coxal plates narrowly expanded internally; prosternal process abruptly and strongly constricted apically, apex narrow and acute.....*Melanophila*
- Hind coxal plates strongly expanded internally; prosternal process gradually constricted, apex acute but not narrow.....16
16. Antennal segments 4-11 with sensory areas confined to outer edge and under surface; last antennal segment without projection in either sex.....*Cinyra*
- Antennal segments 4-11 with sensory areas covering half or more than half of outer surface; last antennal segment with apical process, sometimes absent in the males.....*Hippomelas*

GENUS *ACMAEODERA*

KEY TO THE SPECIES OF THE GENUS *Acmaeodera*¹

1. Prosternum with front margin quadrately lobed at middle.....2
- Prosternum with front margin not quadrately lobed at middle.....3
2. Elytra with red maculations along side margins, usually three in number.....*gibbula*
- Elytra without red maculations along side margins.....*delumbus*
3. Head, pronotum, and elytra clothed with elongate or rounded palmate squamae.....4
- Head, pronotum, and elytra clothed with hairs or setae.....5
4. Squamae about as broad as long, anterior projections short; second lateral elytral costae (not counting marginal) elevated above those adjacent to it and largely bare.....*junki*
- Squamae two to three times longer than broad, projections on anterior

¹ *Acmaeodera picta* Waterhouse is not included, as no specimens were available for study.

- margin long; second lateral elytral costae not elevated above those adjacent to it and pilose.....*rockefelleri*
5. Prosternum with front margin reaching the anterior lateral angles of pronotum.....6
- Prosternum with front margin retracted from anterior lateral angles of pronotum.....12
6. Elytra clothed with long, erect, fine hairs.....7
- Elytra clothed with short, stout, erect, or reclining hair.....9
7. Elytra with postmedian lateral red spot.....*bivulnera*
- Elytra without postmedian lateral red spot.....8
8. Pronotum with lateral yellow spot in basal half; elytral markings diffuse and covering much of the surface.....*pulchella*
- Pronotum without lateral yellow spot; elytral markings consisting of, at most, two lateral spots, and one postmedian short fascia and a small subapical median spot (sometimes absent).....*wenzeli*
9. Elytral markings consisting of longitudinal vittae.....10
- Elytral markings consisting of spots or irregular transverse fasciae.....11
10. Disc of pronotum sparsely punctate, punctures separated by one to two times their own widths; size small, 4–5 mm.....*quadrivittata*
- Disc of pronotum densely punctate, punctures separated by less than one-half their own widths; size larger, 6.2–7 mm.....*discalis*
11. Elytra with second marginal costa prominently elevated, especially towards apex (not counting marginal costa); markings on elytra in the form of connected fasciae.....*parkeri*
- Elytra with second marginal costa not elevated above rest of costae; elytral markings in the form of spots or separated fasciae.....*hulli*
12. Elytra without markings.....24
- Elytra with markings.....13
13. First marginal costae distinctly elevated above rest of costae (not counting marginal costa).....14
- Elytra with first marginal costae not elevated above rest of costae (not counting marginal costa).....15
14. Elytra attenuate from base to apex; pronotum densely punctate, punctures separated by less than one-half their own widths.....*sparsa*
- Elytral margins subparallel to apical third, attenuate from apical third to apex; pronotal punctures separated by their own widths or more than their own widths.....*miliaris*
15. Elytra with second marginal costae greatly elevated and protruding over first from middle to apical sixth (not counting marginal costa).....*paradisjuncta*
- Elytra with second marginal costae not elevated, or only slightly so, and not protruding over first.....16
16. Elytral disc without markings, one or two transverse red or yellow fasciae on apical fourth.....*flavomarginata*
- Elytral disc with markings.....17
17. Elytral surface with numerous small, irregularly placed, isolated yellow spots connected into irregular fasciae only at extreme apex if at all; form elongate to narrow.....18
- Elytral surface either with few large spots and fasciae or with large, irregular fasciae; form robust.....19

18. Pronotum with side margins evenly emarginate from base to apex; elytral apex with red markings.....*rubronotata*
- Pronotum with side margin not emarginate basally; elytral apex without red markings.....*impluviata*
19. Apex of elytra with two or three red fasciae.....*disjuncta*
- Apex of elytra without red fasciae.....20
20. Pronotum wider than base of elytra, strongly narrowed anteriorly; elytral punctures large and deep.....21
- Pronotum as wide as, or narrower than, base of elytra, feebly narrowed anteriorly; elytral punctures small and shallow.....*scalaris*
21. Elytra costate basally; pronotal disc deeply impressed.....*ampliocollis*
- Elytra not costate basally; pronotal disc shallowly impressed.....22
22. Pronotum with lateral yellow spot; last ventral abdominal segment not carinate subapically (may be slightly raised); pronotum widest at extreme base.....*delectabilis*
- Pronotum without lateral yellow spot; last ventral abdominal segment strongly carinate subapically; pronotum widest in front of base.....23
23. Side pronotal margins evenly rounded in front of base, pronotal disc densely, evenly punctate, punctures separated by about one-third their own widths, striae punctures on apical third of elytra round and distinct.....*auritincta*
- Side pronotal margins angulate in front of base, pronotal disc moderately densely but irregularly punctate, punctures separated by one-half to two times their own widths, striae punctures on apical third of elytra elongate and indistinct.....*flavopicta*
24. Punctures large and deep; color greenish bronze or brilliant green.....
- Punctures small and shallow; color black or bluish black.....*resplendens*
- Punctures small and shallow; color black or bluish black.....*impluviata*

***Acmaeodera gibbula* LeConte**

Figures 1, 25

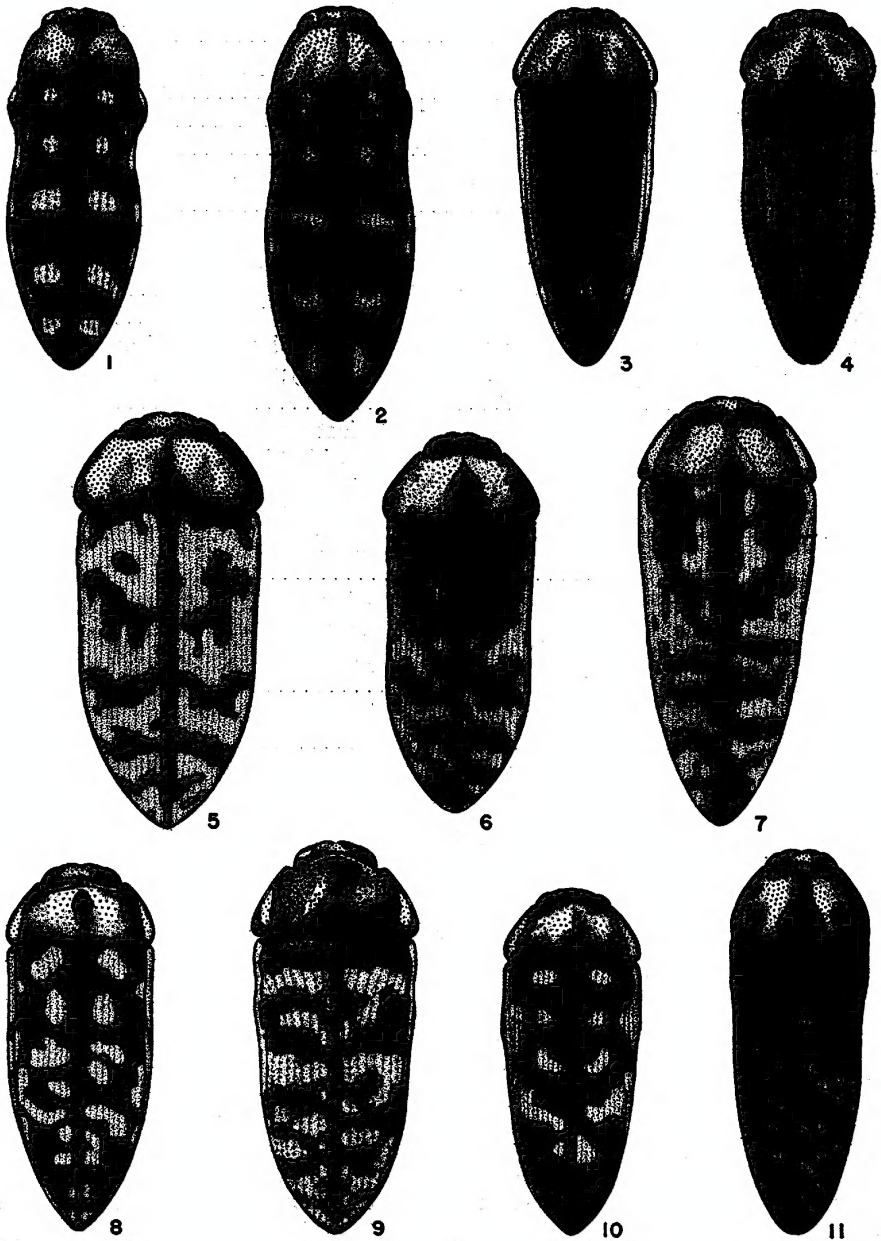
Acmaeodera gibbula LECONTE, 1858, Proc. Acad. Nat. Sci. Philadelphia, vol. 10, p. 69.

The variability in the series is similar to that exhibited in a series from Arizona, and the red lateral markings are prominent in all specimens.

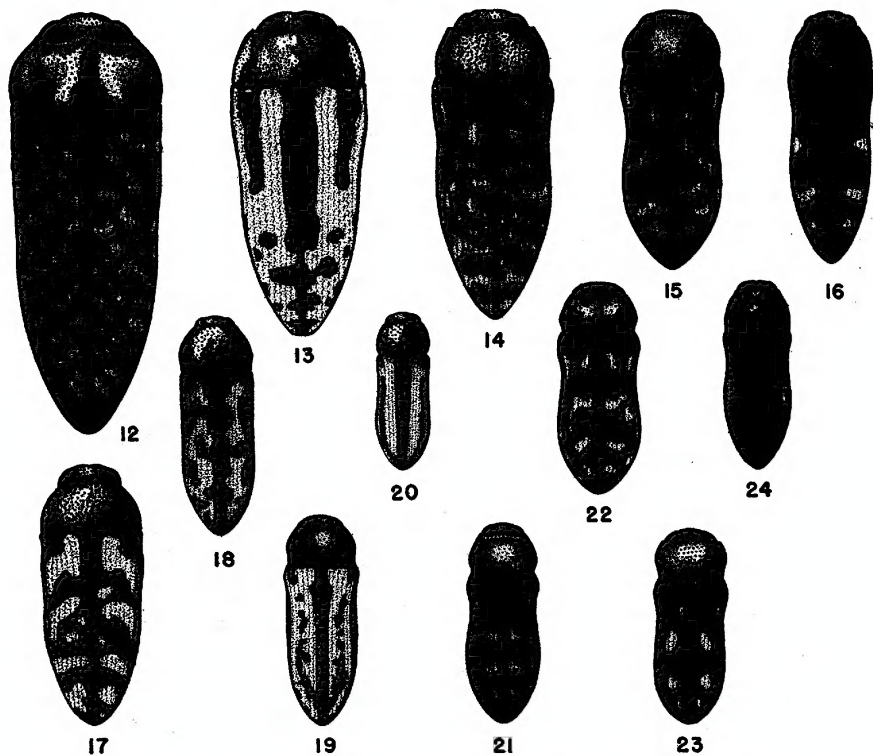
TYPE LOCALITY: Between El Paso, Texas, and San Diego, California.

RECORDED MEXICAN DISTRIBUTION: Baja California: Santa Rosa (1); Cape region; San José del Cabo (2); 7 miles south of El Marmol (4). Sonora: Chilmalma (not located); Tiburon Island (3), Gulf of California.

NEW RECORDS FOR MEXICO: Chihuahua: 20 miles southwest of Camargo (7), July 13, 1947, 4500 feet. Coahuila: 25 miles southeast of San Pedro de Colonias (9), August 21, 1947, 3700



FIGS. 1-11. Adults of *Acmaeodera* species. 1. *A. gibbula*. 2. *A. delumbis*. 3. *A. flavomarginata*. 4. *A. resplendens*. 5. *A. auritincta*. 6. *A. flavopicta*. 7. *A. amplicollis*. 8. *A. paradisjuncta*. 9. *A. delectabilis*. 10. *A. disjuncta*. 11. *A. impluviata*.



FIGS. 12-24. Adults of *Acmaeodera* species. 12. *A. rubronotata*. 13. *A. scalaris*. 14. *A. sparsa*. 15. *A. miliaris*. 16. *A. wenzeli*. 17. *A. pulchella*. 18. *A. parkeri*. 19. *A. discalis*. 20. *A. quadrivittata*. 21. *A. junki*. 22. *A. rockefelleri*. 23. *A. hulli*. 24. *A. bivulnera*.

feet; Paila (8), August 21, 1947, 3900 feet. Durango: La Quebrada (10), July 20, 1947. Sonora: Guaymas (5), August 8, 1940 (R. P. Allen); Rio Mayo (6).

***Acmaeodera delumbis* Horn**

Figure 2

Acmaeodera delumbis HORN, 1894, Proc. California Acad. Sci., vol. 4, p. 378.

The small series taken on the expedition is fairly uniform and shows the same variability as the Arizona series. There are no red markings on the elytra.

TYPE LOCALITY: Arizona.

RECORDED MEXICAN DISTRIBUTION: Sonora: Tiburon Island, Gulf of California.

NEW RECORDS FOR MEXICO: Chihuahua: Ojo Laguna, June 30, 1947; 20 miles southwest of Camargo, July 13, 1947, 4500 feet; Samalayuca, June 24, 1947.

Acmaeodera junki Théry

Figures 21, 26, 28

Acmaeodera junki THÉRY, 1929, Bull. Soc. Ent. Egypte, p. 115 (new name).

Acmaeodera squamosa VAN DYKE, 1919, Ent. News, vol. 30, p. 186.

The three specimens of this small squamose species collected on the expedition are remarkably uniform in size and maculation. This species can easily be confused with *rockefelleri* if not ex-

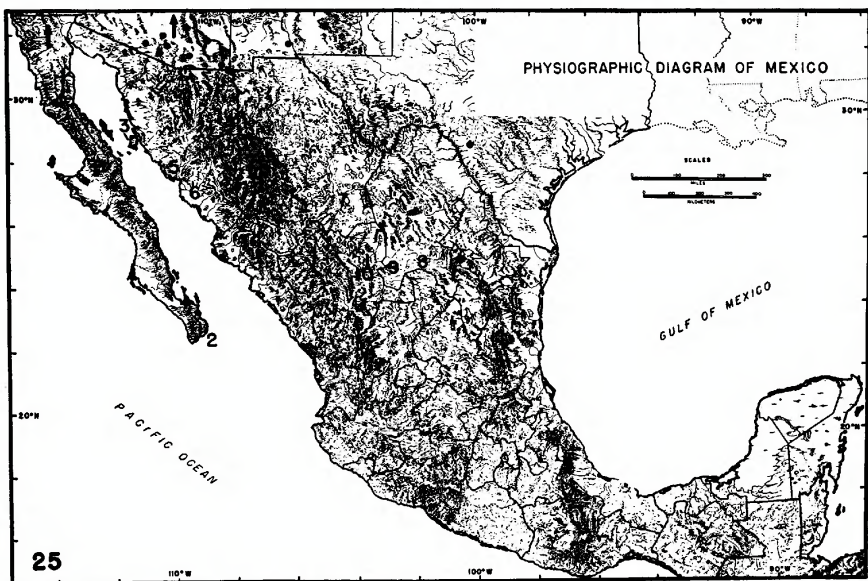


FIG. 25. Distribution of *Acmaeodera gibbula* LeConte.

amined closely. The scales are rounded, and the second marginal elytral costa is elevated above the others and is nearly devoid of scales.

TYPE LOCALITY: Florence, Arizona.

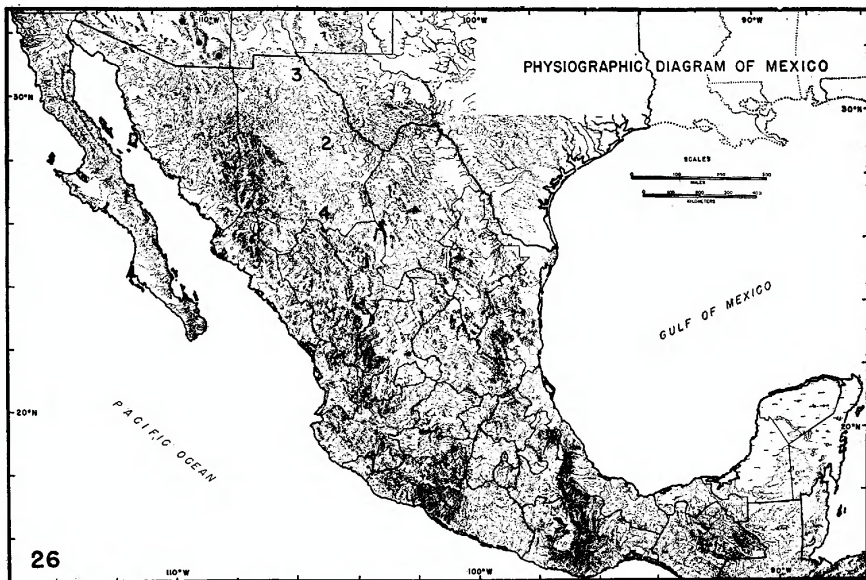
RECORDED MEXICAN DISTRIBUTION: Baja California: 20 miles south of Santa Rosalia (1), July 25, 1938.

NEW RECORDS FOR MEXICO: Chihuahua: Ojo Laguna (2), June 30, 1947; Samalayuca (3), June 24, 1947; Salaices (4), May 15, 1948, 5200 feet (G. M. Bradt).

***Acmaeodera rockefelleri*, new species**

Figures 22, 27

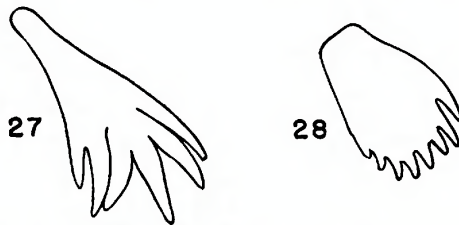
Small, robust; black, with purplish reflections. Pronotum unicolorous. Each elytron with two subbasal yellow spots, a median lateral spot narrowly connected to median transverse fascia which extends to sutural costa, two postmedian lateral spots, one postmedian central spot covering costae 3, 4, and 5 (counting from subsutural costa), one subapical lateral spot, one subapical median spot on costa 3. Clothed with hair and elon-

FIG. 26. Distribution of *Acmaeodera junki* Théry.

gate palmate squamae. Anterior margin of prosternum shallowly trisinuate, lateral angles not touching anterior lateral pronotal angles, but extending almost as far forward. Last abdominal segment not carinate apically.

MALE: Head evenly rounded, not carinate dorsally, surface densely shallowly punctate, punctures large, narrowly separated and occasionally coalescent, sparsely pilose above, densely clothed with palmate squamae on anterior two-thirds; clypeus deeply emarginate anteriorly; antennae with fifth and succeeding segments enlarged ventrally, first and second clothed with few hairs and numerous palmate squamae, segments 3 and 11

sparsely clothed with long hair. Pronotum convex above, disc shallowly impressed medially, sides of disc obliquely impressed from base to apical third, lateral margins not visible from above, not reflexed, sides evenly rounded, widest at about middle, surface shallowly punctate, punctures large and proximate to each other laterally, obscure on disc, disc sparsely clothed with long white hair, anterior margin sparsely clothed with hair and palmate squamae, basal and lateral margins densely clothed with palmate squamae. Elytra slightly wider than pronotum, sides shallowly sinuate behind humeral umbones, evenly rounded to apex, second marginal costae not elevated above other costae, costae sparsely clothed with short, suberect, white hairs and decumbent palmate squamae, the latter being more abundant towards the sides, striae with punctures separated by about their own widths except on basal third where they are irregular, larger,



FIGS. 27-28. Individual elytral scales. 27. *A. rockefelleri* Cazier. 28. *A. junki* Théry.

and coalescent, side margins serrate on apical third. Ventral surface densely clothed with palmate squamae (except for the last three abdominal segments) with a few long single hairs intermixed, mesoepisterna densely clothed with hair, last three abdominal segments densely clothed with long, recurved, yellowish hair. Length, 6 mm.; width, 3.4 mm.

FEMALE: Same as the male except for the last three abdominal segments which are densely clothed laterally with palmate squamae and sparsely clothed medially with suberect white hair. Length, 6 mm.; width, 3.2 mm.

TYPE MATERIAL: Holotype, male, collected at Samalayuca, Chihuahua, Mexico, June 24, 1947. Allotype, female, collected at Toyah, Reeves County, Texas, June 22, 1947. One male paratype collected at the same locality as the allotype. All types in the collection of the American Museum of Natural History.

This species is most closely related to *A. junki* Théry, with which it is sympatric, at least at Samalayuca, Mexico. It can be separated from that species by its elongate palmate squamae (three to four times longer than broad) rather than round, by having the second marginal costae of the elytra not elevated, by the pronotal disc, which is indistinctly punctate, by the hairy rather than squamose mesoepisternum, by having scattered hairs on the ventral surface of the thorax and first two abdominal segments, and the fact that the front margin of the prosternum does not reach the anterior lateral pronotal angles. It can be distinguished from *A. mimicata* Knull, which it resembles superficially, by the median and lateral oblique pronotal impressions, by its deeply emarginate anterior clypeal margin, by the obscure punctuation of the pronotal disc, by having hairs as well as palmate squamae on the elytra, by its less strongly trisinate anterior prosternal margin, by having hair on the mesoepisternum and middle of abdominal segments 1 and 2, and by its smaller and less robust size.

***Acmaeodera bivulnera* Horn**

Figures 24, 29

Acmaeodera bivulnera HORN, 1894, Proc. California Acad. Sci., vol. 4, p. 371.

Two specimens similar in every respect with series from Arizona.

TYPE LOCALITY: Near Tucson, Arizona.

NEW RECORDS FOR MEXICO: Sonora: Guaymas (1), August 8, 1940 (R. P. Allen); Alamos (2), July 28, 1940 (R. P. Allen). Chihuahua: Salaices (3), July 23, 1947, and September 7, 1947, 5200 feet (G. M. Bradt).

***Acmaeodera pulchella* Herbst**

Figure 17

Acmaeodera pulchella HERBST, 1801, Natursystem Insekten, vol. 9, p. 211, pl. 44.

This species was taken in considerable numbers at several localities, and all samples exhibit considerable variability as do the samples from the United States. Some of the specimens have very few dark markings, and others have the yellow arranged in isolated spots or into four isolated fasciae. In size

they range from 6 to 13 mm., with most of the primarily yellow specimens being of smaller size. This condition also exists in samples from the United States. Phenotypically, specimens from the same localities can be assigned to as many as three of the varietal names. It is surprising that this common and widespread species has not previously been recorded from Mexico.

TYPE LOCALITY: "America. Sept."

NEW RECORDS FOR MEXICO: Chihuahua: Samalayuca, June 24, 1947; 92 kilometers north of Chihuahua City, June 30, 1947; Huejotitlan, July 21, 1947, 5700 feet; 20 miles southwest

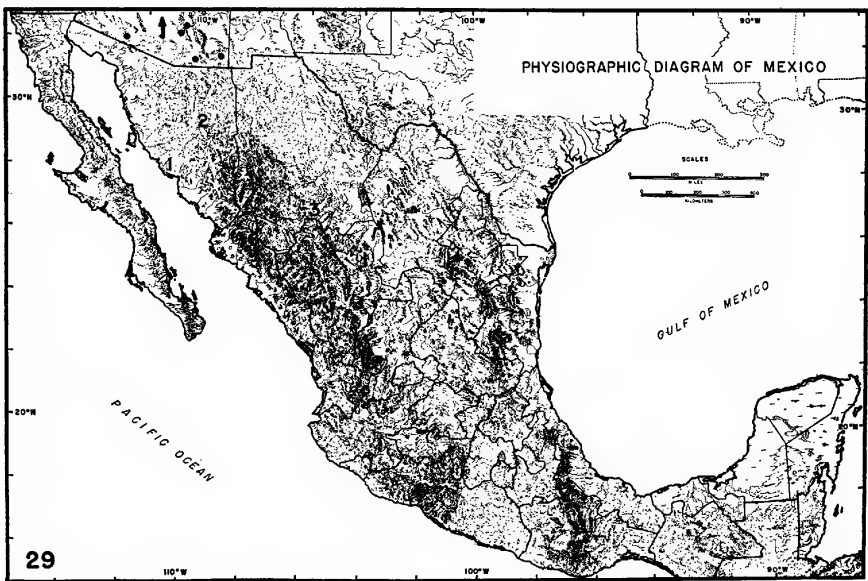


FIG. 29. Distribution of *Acmaeodera bivulnera* Horn.

of Camargo, July 13, 1947, 4500 feet. Durango: Pedricena, August 19, 1947, 4500 feet; Rodeo, San Juan del Rio District, July 29, 1947, 4700 feet. Coahuila: Paila, August 21, 1947, 3900 feet; Cabos, August 21, 1947, 4000 feet.

Acmaeodera wenzeli Van Dyke

Figure 16

Acmaeodera wenzeli VAN DYKE, 1919, Ent. News, vol. 30, p. 154, pl. 7, fig. 4.

The three specimens collected do not differ from those from the type locality in Texas.

TYPE LOCALITY: Chisos Mountains, Texas.

NEW RECORDS FOR MEXICO. Durango: Rodeo, San Juan del Rio District, July 29, 1947, 4700 feet.

***Acmaeodera quadrivittata* Horn**

Figure 20

Acmaeodera quadrivittata HORN, 1870, Trans. Amer. Ent. Soc., vol. 3, p. 79.

The small series collected on the expedition agree in all respects with series from Texas and Arizona.

TYPE LOCALITY: Utah.

RECORDED MEXICAN DISTRIBUTION: Baja California: Hamilton Ranch, August 2, 1938; 10 miles west of San Fernando, July 31, 1938.

NEW RECORDS FOR MEXICO: Chihuahua: Samalayuca, June 24, 1947. Coahuila: Paila, August 21, 1947, 3900 feet; 25 miles southeast of San Pedro de Colonias, August 21, 1947, 3700 feet.

***Acmaeodera discalis* Cazier**

Figure 19

Acmaeodera discalis CAZIER, 1940, Wasmann Collector, vol. 4, p. 24.

The short series from Mexico appears to be slightly more variable than those from Texas and Arizona in that the yellow elytral maculations have scattered brownish spots over the surface. In three specimens these spots are arranged longitudinally, giving the specimens the appearance of some specimens of *quadrivittata*, with which it seems to be closely related.

TYPE LOCALITY: Pinal Mountains, Gila County, Arizona.

NEW RECORDS FOR MEXICO: Coahuila: La Rosa, August 22, 1947, 5300 feet; Paila, August 21, 1947, 3900 feet.

***Acmaeodera parkeri* Cazier**

Figures 18, 30

Acmaeodera parkeri CAZIER, 1940, Wasmann Collector, vol. 4, p. 22.

The single specimen collected closely resembles the type and paratypes collected at Globe and Pinal Mountains in Arizona.

TYPE LOCALITY: Globe, Arizona.

NEW RECORDS FOR MEXICO: Sonora: Guaymas (1), August

5, 1940 (R. P. Allen); Alamos (2), July 28, 1940 (R. P. Allen). Durango: La Loma (3), August 20, 1947, 4100 feet.

***Acmaeodera hulli* Knull**

Figures 23, 31

Acmaeodera hulli KNULL, 1928, Ent. News, vol. 39, p. 315.

The Mexican series is like that from New Mexico and from Arizona in which all the elytral markings are in the form of small isolated spots. In the California series some specimens have the spots enlarged and run together to form fasciae.

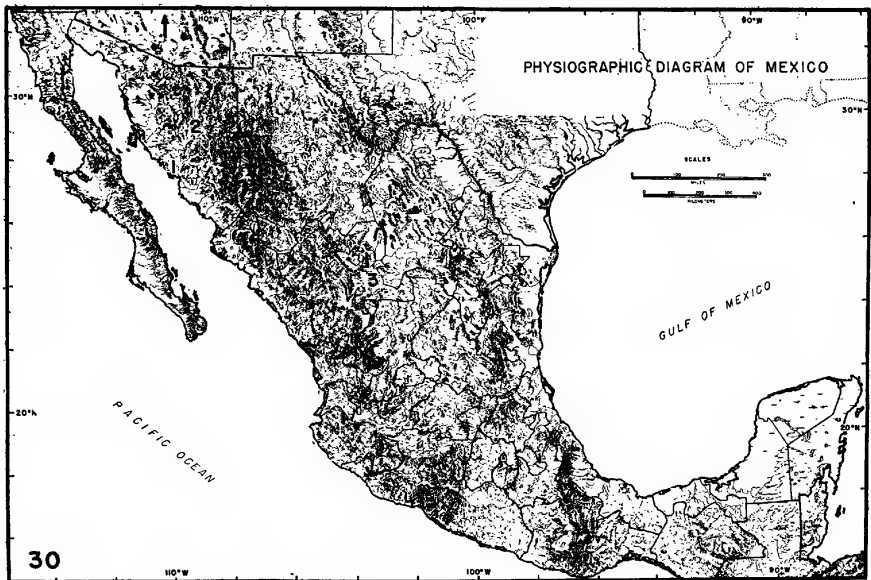


FIG. 30. Distribution of *Acmaeodera parkeri* Cazier.

TYPE LOCALITY: Mesilla Park, New Mexico.

NEW RECORDS FOR MEXICO: Sonora: Altar (1), May 9, 1932. Chihuahua: Samalayuca (2), June 24, 1947; Salaises (3), May 15, 1948, 5200 feet (G. M. Bradt) on acacia. Durango: Rodeo (4), San Juan del Rio District, July 29, 1947, 4700 feet.

***Acmaeodera resplendens* Van Dyke**

Figure 4

Acmaeodera resplendens VAN DYKE, 1937, Bull. Brooklyn Ent. Soc., vol. 32, p. 106.

On the basis of the long series of specimens collected on the expedition, it is doubtful that this species is more than sub-specifically distinct from *cuprina* which occurs in southern Mexico. Specimens of *resplendens* from Arizona are brilliant bluish green, *cuprina* from Jalapa, Vera Cruz, is dark bluish green, and those collected in between range from brilliant green or cupreous green to dark green. The prosternum and punctuation of the elytra in *cuprina* seem to be slightly different and may differentiate the two when long series of *cuprina* are available.

TYPE LOCALITY: Santa Rita Mountains, Arizona.

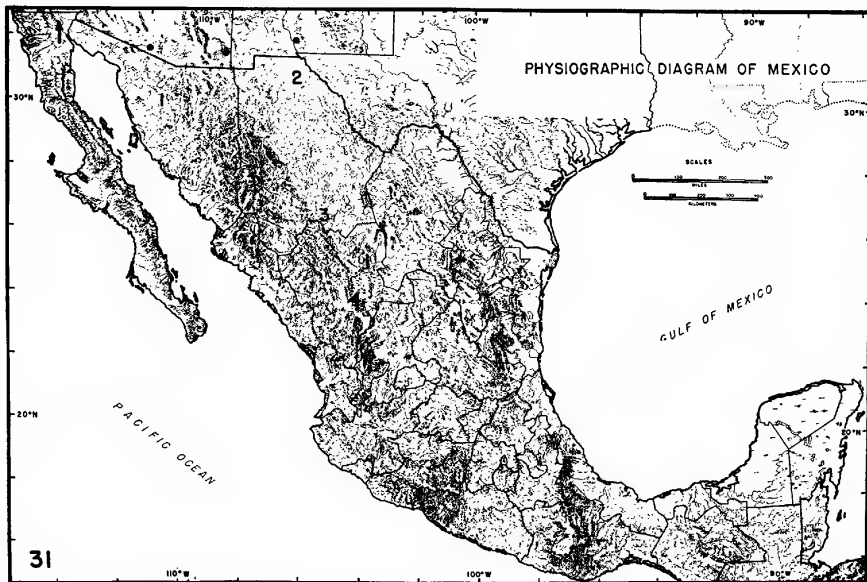


FIG. 31. Distribution of *Acmaeodera hulli* Knull.

NEW RECORDS FOR MEXICO: Chihuahua: 20 miles southwest of Camargo, July 13, 1947, 4500 feet; Kilometer 36, Santa Barbara-Ojito Road, August 17, 1947, 6900 feet (G. M. Bradt). Durango: 6 miles northeast of El Salto, August 10, 1947, 8500 feet; Palos Colorados, August 5, 1947, 8000 feet; Otinapa, August 11, 1947, 8200 feet; Providencia, August 29, 1947, 7700 feet (G. M. Bradt).

***Acmaeodera sparsa* Horn**

Figures 14, 32

Acmaeodera sparsa HORN, 1878, Trans. Amer. Ent. Soc., vol. 7, p. 11, pl. 1, fig. 10.

A common and extremely variable species showing as much variability as series from Arizona.

TYPE LOCALITY: Manitou, Colorado.

NEW RECORDS FOR MEXICO: Chihuahua: Kilometer 36, Santa Barbara-Ojito Road (2), August 17, 1947, 6900 feet (G. M. Bradt); Agua Caliente (3), Santa Barbara District, July 24, 1947. Durango: Palos Colorados (4), August 5, 1947, 8000 feet; Otinapa (5), August 11, 1947, 8200 feet; Coyotes (6), Durango District, August 8, 1947, 8300 feet; Providencia (8), August 24, 1947, 7700 feet (G. M. Bradt). Nuevo Leon: 10 miles south of Linares (7), December 24, 1940 (Welsh, Bohart,

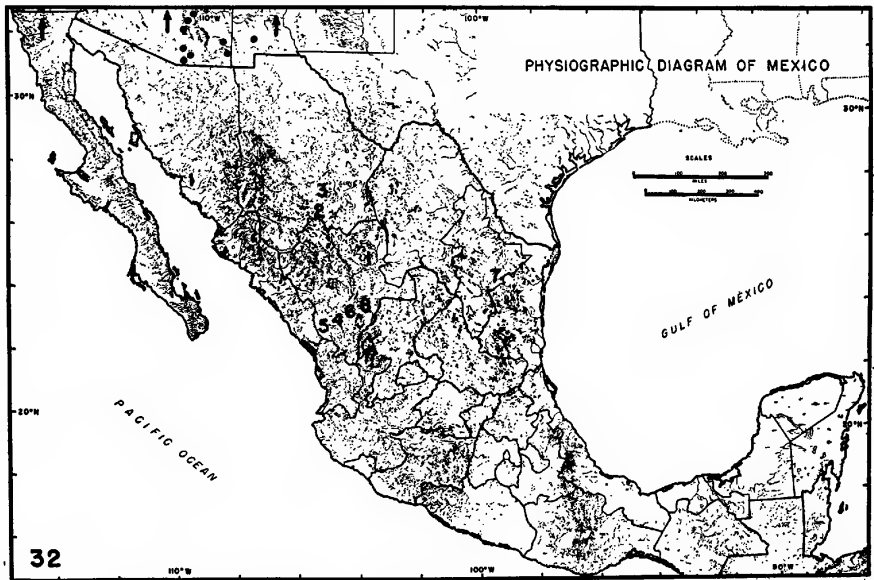


FIG. 32. Distribution of *Acmaeodera sparsa* Horn.

Crawford). Sonora: Rio Mayo (1), August 23, 1935 (R. P. Allen).

Acmaeodera miliaris Horn

Figure 15

Acmaeodera miliaris HORN, 1878, Trans. Amer. Ent. Soc., vol. 7, p. 10, pl. 1, fig. 9.

The one specimen from Mexico differs from the Texas series only in its smaller size.

TYPE LOCALITY: Texas.

NEW RECORDS FOR MEXICO: Coahuila: Canon del Hillcoat, Sierra del Carmen, July 10, 1938, 7000 feet (R. H. Baker).

***Acmaeodera paradisjuncta* Knull**

Figures 8, 33

Acmaeodera paradisjuncta KNULL, 1940, Ohio Jour. Sci., vol. 40, p. 36.

This rather uncommon species was discovered in small quantities at two localities visited by the expedition, but had been

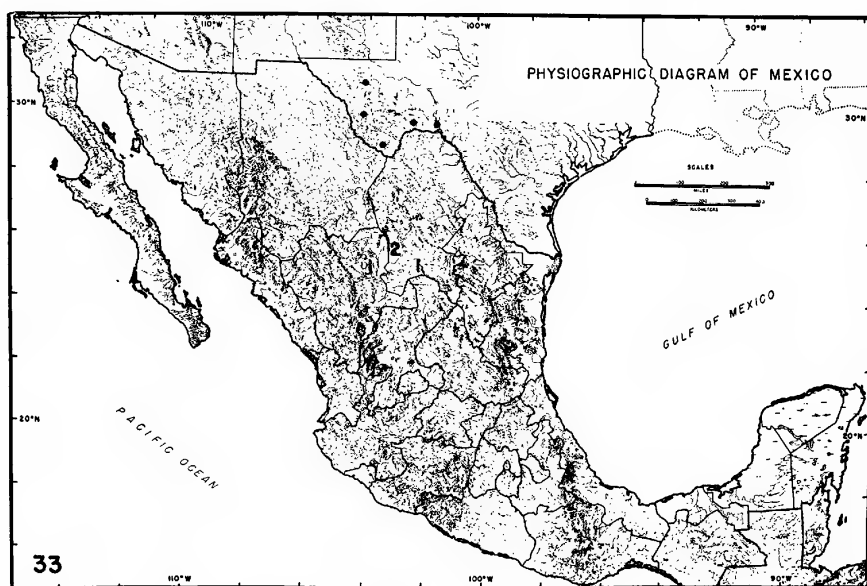


FIG. 33. Distribution of *Acmaeodera paradisjuncta* Knull.

taken previously in Mexico at least on one occasion. In some specimens the apical markings are rather coalescent, but the first marginal costa is depressed, the second greatly elevated, and the side margins are flared at the apical third as in a series from Texas.

TYPE LOCALITY: Davis Mountains, Texas.

NEW RECORDS FOR MEXICO: Coahuila: Canon del Hillcoat, Sierra del Carmen, July 10, 1938, 7000 feet (R. H. Baker); Paila (1), August 21, 1947, 3900 feet; 25 miles southeast of San Pedro de Colonias (2), August 21, 1947, 3700 feet.

***Acmaeodera flavomarginata* (Gray)**

Figures 3, 34

Buprestis flavomarginata GRAY, 1832, in Griffith, Animal kingdom, vol. 14, p. 358, pl. 31, fig. 2.

No specimens of this species were collected on the expedition, but it has been recorded as occurring in the area covered.

TYPE LOCALITY: Eagle Pass, Texas.

RECORDED MEXICAN DISTRIBUTION: Guanajuato: Guanajuato (12). Oaxaca: Almolonga (19); Oaxaca (20); Alban,

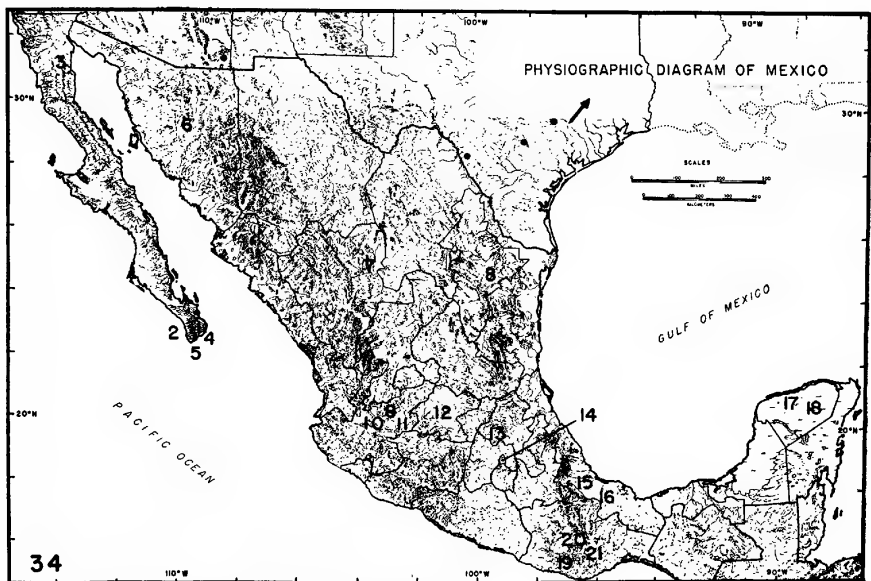


FIG. 34. Distribution of *Acmaeodera flavomarginata* (Gray).

Mitla (21). Vera Cruz: Jalapa (15); Córdoba (16). Hidalgo: Tula (13). Durango: Villa Lerdo (7). Sonora: Chilmalma (6). Jalisco: Zapotlan (10); Octolan (11); Guadalajara (9). Distrito Federal: Tlalenpautla (14). Yucatan: Temax (17); Chichenitza (18). Baja California: Cape San Lucas (5); San José del Cabo (4); Santa Rosa (1); El Taste (2); San Felipe (3); between San José del Cabo and Triunfo.

Also Guatemala: San Geronimo; Escuintla.

NEW RECORDS FOR MEXICO: Nuevo Leon: 10 miles south of Linares (8).

***Acmaeodera rubronotata* Castelnau and Gory**

Figures 12, 35

Acmaeodera rubronotata CASTELNAU AND GORY, 1837, Histoire naturelle...des insectes coléoptères, buprestides, vol. 1, p. 5, pl. 1, fig. 5.

No specimens of this species from north central Mexico have been examined. Specimens from southern Mexico are extremely variable in the elytral maculations, no two specimens being alike.

TYPE LOCALITY: Chile.

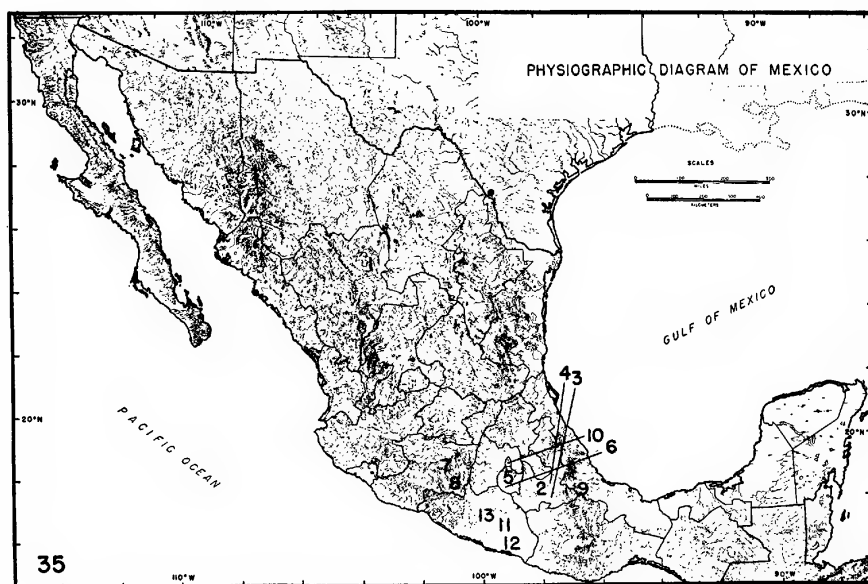


FIG. 35. Distribution of *Acmaeodera rubronotata* Castelnau and Gory.

RECORDED MEXICAN LOCALITIES: Morelos: Cuernavaca (5). Vera Cruz: Orizaba (9). Michoacan: Tacambaro (7); Huétamo (8). Puebla (2): Matamoros Isucar (3); Atlixco (4). Distrito Federal: Mexico City (10). Guerrero: Tepetlapa, 3000 feet; Acaguizotla (12), 3500 feet; Chilpancingo (11), 4600 feet; Venta de Zopilote (13), 2500–2800 feet. Chihuahua: Pinos Altos (1).

NEW RECORDS FOR MEXICO: Morelos: Joyutla (6), August, 1903.

***Acmaeodera impluviata* Mannerheim**

Figure 11

Acmaeodera impluviata MANNERHEIM, 1837, Bull. Soc. Imp. Nat. Moscou, vol. 10, no. 8, p. 26.

No specimens have been examined from the area covered by the expedition and, judging from the published records, the species is primarily southern in distribution.

TYPE LOCALITY: Oaxaca, Mexico.

RECORDED MEXICAN DISTRIBUTION: Guerrero: Acapulco; Venta de Peregrino; Dos Arroyos, 1000 feet; Rio Papagaio,

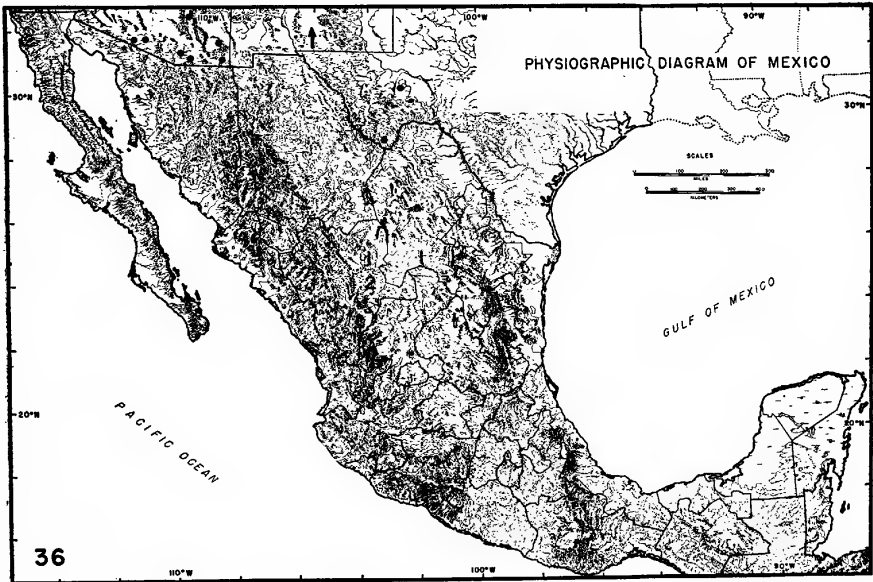


FIG. 36. Distribution of *Acmaeodera disjuncta* Fall.

1200 feet. Oaxaca: Tehuantepec. Durango: Ventanas, 2000 feet.

***Acmaeodera disjuncta* Fall**

Figures 10, 36

Acmaeodera disjuncta FALL, 1899, Jour. New York Ent. Soc., vol. 7, p. 9.

The Mexican specimen collected on the expedition fits into the range of variability of those samples from Arizona and has the second lateral elytral costa only slightly elevated.

TYPE LOCALITY: Arizona.

RECORDED MEXICAN DISTRIBUTION: Mexico.

NEW RECORDS FOR MEXICO: Durango: Yerbanis (2), Cuencame District, August 19, 1947, 6700 feet. Coahuila: Cabos (1), August 21, 1947, 4000 feet.

***Acmaeodera scalaris* Mannerheim**

Figures 13, 37

Acmaeodera scalaris MANNERHEIM, 1837, Bull. Soc. Imp. Nat. Moscou, vol. 10, no. 8, p. 25.

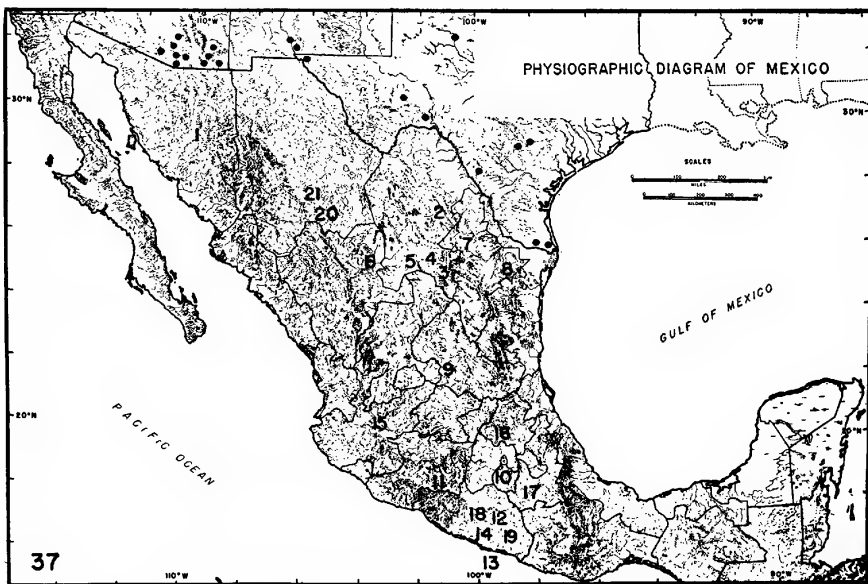


FIG. 37. Distribution of *Acmaeodera scalaris* Mannerheim.

No observable differences were found between the Mexican specimens and those from Texas and Arizona.

TYPE LOCALITY: Mineral del Zimapan.

RECORDED MEXICAN DISTRIBUTION: Puebla: Hacienda de Bledos (not located). San Luis Potosí: San Luis Potosí (9). Morelos: Cuernavaca (10). Puebla: Matamoros Izucar (17). Nuevo Leon: Monterey (7). Hidalgo: Tula (16). Michoacan: Huetamo (11). Guerrero: Amula (12), 6000 feet; Acaguizotla (13), 3500 feet; Chilpancingo (14), 4600 feet; Venta de Zopilote (18), 2800 feet; Hacienda de la Imagen (19), 4000 feet. Coahuila: Saltillo (3); Monclova (2). Durango: Villa Lerdo (6).

NEW RECORDS FOR MEXICO: Coahuila: Cabos (5), August 21, 1947, 4000 feet; La Rosa (4), August 22, 1947, 5300 feet. Sonora: Alamos (1), July 28, 1940 (R. P. Allen). Jalisco: Guadalajara (15), September, 1903 (W. L. Tower). Nuevo Leon: 10 miles south of Linares (8), December 24, 1940 (Stahler, Welsh, Bohart, Crawford). Chihuahua: Parral (20), August 31, 1947, 5800 feet (G. M. Bradt); Salaces (21), September 7, 1947, 5200 feet (G. M. Bradt).

***Acmaeodera amplicollis* LeConte**

Figure 7

Acmaeodera amplicollis LeConte, 1866, Proc. Acad. Nat. Sci. Philadelphia, p. 383.

Specimens taken in northern Mexico exhibit the same variability and characteristics as specimens from Arizona and New Mexico.

TYPE LOCALITY: Fort Whipple (Phoenix), Arizona.

RECORDED MEXICAN DISTRIBUTION: Chihuahua: Pinos Altos (1).

NEW RECORDS FOR MEXICO: Chihuahua: Kilometer 36, Santa Barbara-Ojito Road, August 17, 1947, 6900 feet (G. M. Bradt); Santa Barbara, September 4, 1947, 6200 feet (G. M. Bradt). Durango: Palos Colorados, August 5, 1947, 8000 feet; Providencia, August 24, 1947, 7700 feet (G. M. Bradt).

***Acmaeodera delectabilis* Waterhouse**

Figure 9

Acmaeodera delectabilis WATERHOUSE, 1889, Biologia Centrali-Americana, Coleoptera, vol. 3, pt. 1, p. 180, pl. 9, fig. 14.

Two specimens are assignable to this species, but they differ in color from the figure given by Waterhouse (1889, pl. 9, fig. 14). In the figure the color is shown as being green, whereas the two specimens examined have the ground color bluish black. They appear to be the same as *delectabilis* in all other characters. Waterhouse (1889, p. 181) mentions one specimen from the type locality of *delectabilis* that has the ground color blue-black, but arranged in round spots, which seems to indicate that the species is variable and would include the variations on hand even though they have small spots on the sides of the pronotum, not reaching the anterior angles, and the elytral markings are fasciate and

not arranged in spots. These specimens seem to be intermediate between *delectabilis* as illustrated and the variation mentioned by Waterhouse.

TYPE LOCALITY: Villa Lerdo, Durango.

NEW RECORDS FOR MEXICO: Coahuila: Paila, August 21, 1947, 3900 feet.

***Acmaeodera auritincta* Fall**

Figure 5

Acmaeodera auritincta FALL, 1922, Bull. Brooklyn Ent. Soc., vol. 17, p. 88.

One specimen of this variable species was taken and, except for its large size (13.5 mm.), it is not unlike the more variable specimens from Texas. It has not previously been recorded from Mexico.

TYPE LOCALITY: Kent, Culberson County, Texas, 3900–4200 feet.

NEW RECORDS FOR MEXICO: Coahuila: La Gloria, south of Monclova, August 24, 1947, 3300 feet.

***Acmaeodera flavopicta* Waterhouse**

Figure 6

Acmaeodera flavosticta WATERHOUSE, 1882, Biologia Centrali-Americana, Coleoptera, vol. 3, pt. 1, p. 24, pl. 2, fig. 13.

Acmaeodera flavopicta WATERHOUSE, 1889, Biologia Centrali-Americana, Coleoptera, vol. 3, pt. 1, p. 180 (new name for *flavosticta*).

Acmaeodera falli KERREMANS, 1902, Genera insectorum, fasc. 12, p. 34 (new synonym).

Through the kindness of Dr. J. Balfour-Browne it was possible to compare a cotype of *A. flavopicta* with a series of *A. falli*, and they were found to be conspecific. The species is quite variable both as to size and color, and the markings appear to differ in all specimens.

TYPE LOCALITY: Mexico.

RECORDED MEXICAN DISTRIBUTION: Chihuahua. Paso del Norte. Durango: Villa Lerdo.

NEW RECORDS FOR MEXICO: Chihuahua: Salaiques, September 16, 1947, 5200 feet (G. M. Bradt).

***Acmaeodera picta* Waterhouse**

Acmaeodera picta WATERHOUSE, 1882, Biologia Centrali-Americana, Coleoptera, vol. 3, pt. 1, p. 24, pl. 2, fig. 6.

No specimens of this species have been examined, but judging from the illustration given by Waterhouse (1882, pl. 2, fig. 6) it is closely related to *daggetti* Fall. If this is correct it will key to *scalaris*, but can be distinguished from that species by not having the elytral markings connected longitudinally and by its more elongate and narrower shape. Specimens from Rio Mayo, Sonora, have the same shape and elytral markings as *picta*, but the pronotum has less yellow along the margins.

TYPE LOCALITY: Mexico: Vera Cruz, Orizaba.

RECORDED MEXICAN DISTRIBUTION: Durango: Villa Lerdo. Coahuila: Monclova.

GENUS **BRACHYS**

Brachys marialicae, new species

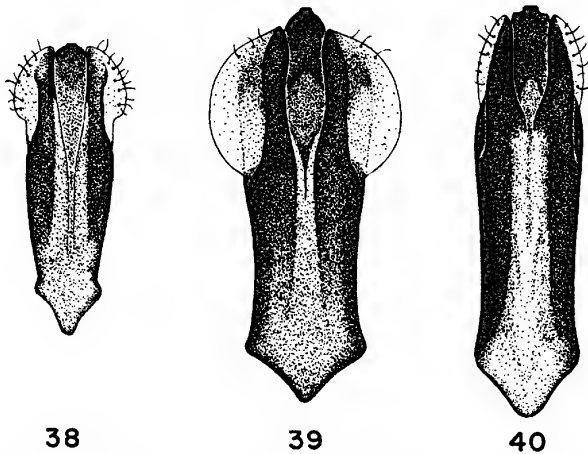
Small, cuneiform, longer than broad; above black with aeneous reflections, beneath black; elytra sparsely pilose except for apical and subapical spots which are more densely pilose, without tufts, lateral carinae extending from base to near apex.

MALE: Head rounded, front with shallow median groove, expanded in front of epistoma, four elevated callosities, two between and two above and between the eyes, densely pilose below, sparsely pilose above, pile white; epistoma slightly elevated above front, flat, anterior margin abruptly and deeply emarginate medially, surface reticulate. Pronotum wider than long, abruptly narrowed anteriorly, widest at base, anterior margin nearly truncate, posterior margin transversely truncate to middle of elytra then turning backward to scutellum, evenly emarginate in front of scutellum, surface sparsely pilose anteriorly, more densely pilose laterally and at base, disc and sides reticulate, basal third densely punctate, punctures large and circular, disc convex, base shallowly depressed, more deeply depressed laterally, lateral carinae obtuse and interrupted medially. Elytra with side margins shallowly sinuate behind humeral umbone, evenly rounded to apex, apices separately rounded; lateral carinae prominent, continuous from base to new apex; surface of disc sparsely irregularly punctate, rugosely punctate laterally, basal two-thirds sparsely, irregularly clothed with semi-erect, short, white pile, apical third with a moderately dense transverse band of yellow and white semi-erect pile, interrupted at suture, subapical patch of white pile on either side of

suture. Abdomen sparsely punctate, punctures large and open posteriorly, each puncture with a short, white, semi-erect hair; apical segment evenly rounded, margin finely dentate on extreme apex, apical suture evenly rounded and following margin. Length, 4 mm.; width, 2 mm.

FEMALE: Similar to the male except that the apical abdominal segment has the margin deeply dentate apically and the apical suture does not follow the margin at apex, apical margin nearly truncate medially. Length, 4.5 mm.; width, 2.5 mm.

TYPE MATERIAL: Holotype, male, allotype, female, and 10 paratopotypes collected at Palos Colorados, Durango, Mexico,



FIGS. 38-40. Male genitalia of three species of *Brachys*. 38. *B. marialicae*. 39. *B. barberi*. 40. *B. ovatus*.

8000 feet, August 5, 1947 on *Quercus* sp. All types in the collection of the American Museum of Natural History.

This species appears to be most closely related to *B. barberi* (fig. 39) Fisher and *B. cephalicus* Schaeffer, but can be separated from the former by not having the apical groove in the female strongly sinuate, the pubescence on the elytra not forming three fasciae, pubescence on head not reddish yellow, and the quite different male genitalia (fig. 38). From *B. cephalicus* it can be distinguished by not having the pile on the front golden and by not having the tubercles above the eyes strongly convex.

The species is named in honor of Mrs. Bradt.

GENUS **PARADOMORPHUS**KEY TO THE SPECIES OF *Paradomorphus*¹

- Color of elytra steel blue; abdomen without spots on sides of second segment *flohri*
Color of elytra dark brown, with cupreous reflections; abdomen with a distinct yellowish white spot on the sides of the second segment. . . . *ruginosus*

Paradomorphus ruginosus Waterhouse

Paradomorphus ruginosus WATERHOUSE, 1889, Biologia Centrali-Americana, Coleoptera, vol. 3, pt. 1, p. 52.

No specimens of this genus or species were taken on the expedition.

TYPE LOCALITY: Ventanas, Durango, Mexico.

Paradomorphus flohri Waterhouse

Paradomorphus flohri WATERHOUSE, 1897, Biologia Centrali-Americana, Coleoptera, vol. 3, pt. 1, App., p. 664.

No specimens of this species were collected on the expedition.

TYPE LOCALITY: Canelas, Durango, Mexico.

GENUS **PACHYSCHELUS****Pachyschelus chapuisi** (Dugès)

Brachys chapuisi DUGÈS, 1891, La Naturelle, ser. 2, vol. 2, p. 36, pl. 2, fig. 63.

No specimens of this genus were taken on the expedition.

TYPE LOCALITY: Tupatora, Mexico.

RECORDED MEXICAN DISTRIBUTION: Durango: Tepehuanes; Durango City.

GENUS **PARAGRILUS****Paragrilus rugatulus** Thomson

Paragrilus rugatulus THOMSON, 1879, Typi buprestidarum Musaei Thomsoniani, App. 1A, p. 74.

No specimens of this genus were collected on the expedition.

TYPE LOCALITY: Ventanas, Durango, Mexico.

RECORDED MEXICAN DISTRIBUTION: Morelos: Cuernavaca. Guerrero: Chilpancingo; Tierra Colorada. Vera Cruz: Jalapa; Orizaba. Oaxaca: Oaxaca.

¹ This key was made from the descriptions given by Waterhouse, 1889.

GENUS **TAPHROCERUS****Taphrocerus leoni** Dugès

Taphrocerus leoni DUGÈS, 1891, La Naturelle, ser. 2, vol. 2, p. 35, pl. 2, figs. 61, 61a.

No specimens of this species were taken on the expedition.

TYPE LOCALITY: Tupatario, Guanajuato, Mexico.

RECORDED MEXICAN DISTRIBUTION: Durango; Tepehuanes.

GENUS **ACTENODES****Actenodes chalybeitarsis** (Chevrolat)

Belionota? chalybeitarsis CHEVROLAT, 1834, Coléoptères du Mexique, fasc. 5, p. 10.

No specimens of this species were collected on the expedition.

TYPE LOCALITY: Boca del Monte, Mexico.

RECORDED MEXICAN DISTRIBUTION: Vera Cruz: Córdoba; Jalapa. Misantla. Plan del Rio. Guerrero: Acapulco; Chilpancingo. Chiapas: Tapachula. Durango: Villa Lerdo.

GENUS **POLYCESTA**KEY TO THE SPECIES AND SUBSPECIES OF *Polycesta*

1. Elytra with all interstitial spaces elevated.....*velasco*
- Elytra with alternate interstitial spaces costate.....2
2. Elytral apices expanded internally.....*arizonica*
- Elytral apices pointed and not expanded internally.....3
3. Scutellar costae extending to middle of elytra; color purple-coppery with green intermixed; size large, 26 mm.....*alternans*
- Scutellar costae extending to basal third of elytra; color black; size smaller, 13.5–18.0 mm.....*arizonica acidota*

Polycesta velasco Castelnau and Gory

Figure 41

Polycesta velasco CASTELNAU AND GORY, 1837, Histoire naturelle. .des insectes coléoptères, buprestides, vol. 2, p. 5.

This species can be separated from its United States relatives by the following combination of characteristics (Barr, 1949): Pronotum without depressions; male without a pubescent spot on the first abdominal sternite; elytra shining black, all interstitial spaces elevated, apices not widened internally. Its closest Mexican relative appears to be *Polycesta montesuma* Castelnau and

Gory. If the specimen referred to by Waterhouse (1882, p. 18) is this species, then *velasco* can be separated from it by having the first elytral costa extending about half the length of the elytra rather than one-third the length or two-thirds the length as described by Castelnau and Gory.

TYPE LOCALITY: Mexico.

RECORDED MEXICAN DISTRIBUTION: Baja California: El Chinche (4), 2000 feet; Santa Rosa (1), 2000 feet; 15 miles west of La Paz (2), July 5, 1938. Mexico.

NEW RECORDS FOR MEXICO: Chihuahua: Valle de Olivos (3), July 20, 1947, 5500 feet.



FIG. 41. Distribution of *Polycesta velasco* Castelnau and Gory.

***Polycesta alternans* Waterhouse**

Polycesta alternans WATERHOUSE, 1904, Ann. Mag. Nat. Hist., ser. 7, vol. 14, p. 256.

No specimens of this species were taken on the expedition, and none have been available for study.

TYPE LOCALITY: Pinos Altos, Chihuahua, Mexico.

***Polycesta arizonica acidota*, new subspecies**

Similar to *P. arizonica* Schaeffer, but differing from that subspecies by being of a larger average size, and by the fact that the

apices of the elytra are straight and acutely pointed, the tips are not expanded internally, the interstrial spaces have the punctures evident, not so confused as in *arizonica*, the disc of the pronotum shiny, not deeply reticulate, and the lateral lobes of the male genitalia more narrowly separated on the apical third, with internal margins nearly straight. Length, 13.5–18.0 mm.

TYPE MATERIAL: Holotype male, allotype female, and six paratopotypes collected 30 miles west of Balleza, Chihuahua, Mexico, May 27, 1948, 7900 feet (G. M. Bradt). All specimens were found dead in shallow holes in the trunk of a dead oak tree. The allotype female has no head, and three of the paratypes lack the head and pronota.

This subspecies will run to *P. arizonica* in Barr's key (1949) except for the apices of the elytra which are not expanded internally.

One of the paratopotypes is deposited in the collection of Dr. W. F. Barr who very kindly examined the specimens and expressed his opinion in favor of recognizing the population as a subspecies.

GENUS *PARATYNDARIS*

Paratyndaris acaciae Knull

Paratyndaris acaciae KNULL, 1937, Ann. Ent. Soc. Amer., vol. 30, p. 254.

One specimen of this species was taken on Cat's Claw (*Acacia constricta* Benth) and it agrees in all respects with topotypes examined. The species resembles *P. coursetia* Fisher, but can be distinguished from it by its larger size, by its less coarsely punctate head and pronotum, by having a bare longitudinal depression on the front of the head, and by having the base of the elytra less densely punctate. Both species have similar markings.

TYPE LOCALITY: Davis Mountains, Texas.

NEW RECORDS FOR MEXICO: Chihuahua: 20 miles southwest of Camargo, July 13, 1947, 4500 feet.

GENUS *AGRILUS*

KEY TO THE SPECIES OF *Agrilus*

1. Elytra with apices prolonged.....*sulcatulus*
- Elytra with apices not prolonged.....2
2. Elytra bicolored.....3
- Elytra unicolorous.....5

3. Elytral punctures cuniform and separated from each other.....*aurilatera*
- Elytra rugosely punctate.....4
4. Elytra with longitudinal green or blue fasciae extending from base to apex;
head strongly convex in front.....*pulchellus*
- Elytra with longitudinal green fasciae extending from basal fifth to apex;
head feebly convex.....*asperulus*
5. Antennae serrate, beginning at fourth segment.....6
- Antennae serrate, beginning at fifth segment.....12
6. Sides of pronotum densely pilose; abdominal segments with spots of dense
pile laterally.....*santaritae*
- Sides of pronotum not densely pilose; abdominal segments without spots
of dense pile laterally.....7
7. Elytra costate.....8
- Elytra not costate.....10
8. Pronotum with a deep median depression extending from base to apex.9
- Pronotum with at most a shallow impression at middle and at base, not
connected.....*townsendi*
9. Each elytron with two costae; color black; scutellum not deeply impressed
medially.....*tarahumarae*
- Each elytron with one costa; color green or purplish black; scutellum
deeply impressed medially.....*restrictus*
10. Disc of scutellum transversely carinate; pronotum with prehumeral
carinae.....*bradti*
- Disc of scutellum not carinate; pronotum without prehumeral carinae...11
11. Unicolorous above, green or blue.....*chihuahuae*
- Bicolored above, head and pronotum red, elytra black.....*huachucae*
12. Elytra with a faint or pronounced longitudinal pilose vitta along suture
.....13
- Elytra without vittae, evenly pilose throughout.....14
13. Elytra with pronounced vittae.....15
- Elytra with faintly indicated vittae.....*jacobinus*
14. Front of head or vertex deeply impressed; color red, black, or brownish
cupreous.....16
- Front of head and vertex not impressed; unicolorous above, green or
blue.....*lacustris*
15. Elytra greenish; pronotum densely pilose laterally; marginal and sub-
marginal pronotal carinae narrowly separated anteriorly..*chicomcoatlae*
- Elytra cupreous red or brown; pronotum sparsely pilose laterally; mar-
ginal and submarginal pronotal carinae widely separated anteriorly...17
16. Uniformly brownish cupreous; front of head nearly flat.....*omecatli*
- Head and pronotum red, elytra black; front of head deeply impressed
...*rockefelleri*
17. Front of head with longitudinal median depression; pronotum wider at
apex than base; pronotum without longitudinal median depression;
scutellum transversely carinate.....*felix*
- Front of head flat; pronotum subequal in width at base and apex; prono-
tum with a narrow, shallow, longitudinal, median depression; scutellum
not transversely carinate.....*ometauhili*

***Agrilus sulcatulus* Chevrolat**

Agrilus sulcatulus CHEVROLAT, 1835, Coléoptères du Mexique, fasc. 6, p. 139.

No specimens of this species were taken on the expedition, and it appears to be the only species with prolonged elytral apices recorded from north central Mexico.

TYPE LOCALITY: Mexico.

RECORDED MEXICAN DISTRIBUTION: Durango: Villa Lerdo. Guanajuato: Tupataro. Mexico City. Córdoba. Puebla. Guerrero: Amula, 6000 feet.

***Agrilus aurilatera* Waterhouse**

Agrilus aurilatera WATERHOUSE, 1889, Biologia Centrali-Americana, Coleoptera, vol. 3, pt. 1, p. 120.

No specimens of this species were collected on the expedition.

TYPE LOCALITY: Pinos Altos, Chihuahua, Mexico.

RECORDED MEXICAN DISTRIBUTION: Guanajuato.

***Agrilus pulchellus* Bland**

Agrilus pulchellus BLAND, 1865, Proc. Ent. Soc. Philadelphia, vol. 4, p. 382.

Agrilus pinalicus WICKHAM, 1903, Canadian Ent., vol. 35, pp. 69, 70.

This species was placed in the genus *Engyaulus* by Waterhouse, but was returned to *Agrilus* by Fisher and then back to *Engyaulus* by Obenberger. There seems to be no justification for its placement in a distinct genus, and it is therefore returned to *Agrilus* (see Fisher, 1928, p. 104).

The single specimen collected on the expedition does not differ from the specimens taken in Arizona.

TYPE LOCALITY: Colorado.

RECORDED MEXICAN DISTRIBUTION: Chihuahua. Durango: Tepehuanes. Sonora.

NEW RECORDS FOR MEXICO: Chihuahua: Balleza, July 21, 1947, 5200 feet.

***Agrilus asperulus* Waterhouse**

Agrilus asperulus WATERHOUSE, 1889, Biologia Centrali-Americana, Coleoptera, vol. 3, pt. 1, p. 101, pl. 6, figs. 7, 7a, 7b.

No specimens of this species were taken on the expedition.

TYPE LOCALITY: Ciudad, Durango, Mexico, 8100 feet.

***Agrilus santaritae* Knull**

Agrilus santaritae KNULL, 1937, Ent. News, vol. 48, pp. 39, 40.

The Mexican specimens agree in every respect with the original description, and the male genitalia are the same as illustrated for this species. It has previously been recorded only from Arizona.

TYPE LOCALITY: Santa Rita Mountains, Arizona, August 12, 1935.

NEW RECORDS FOR MEXICO: Durango: Palos Colorados, August 5, 1947, 8000 feet; Las Puentes, July 24, 1947, 7500 feet.

***Agrilus townsendi* Fall**

Agrilus townsendi FALL, 1907, Trans. Amer. Ent. Soc., vol. 33, pp. 234, 235.

Some variability in color is present in the Mexican series. The elytra vary from almost black with very little cupreous to cupreous black with purplish reflections. The pronota are cupreous red but have greenish and purplish reflections. The species is easily distinguishable by the male genitalia as illustrated by Knull, 1944.

TYPE LOCALITY: Rio Ruidosa, White Mountains, New Mexico, 6500 feet.

NEW RECORDS FOR MEXICO: Durango: Palos Colorados, August 5, 1947, 8000 feet.

***Agrilus tarahumarae*, new species**

Figure 42

Large, robust; black throughout. Elytral apices not prolonged, antennae serrate beginning with fourth segment, tarsal claws simply cleft, teeth not turned inward, pygidium without projecting carina, pronotum with a broad, deep, median depression extending from base to near apex, elytra without pubescent markings, sides of pronotum not densely pubescent.

MALE: Head about equal in width at top and bottom, front concave, median impression deep, triangular in apical half, lateral margins of triangular impression slightly tumid, surface sparsely, uniformly clothed with white pile, rugosely punctate; epistoma shallowly emarginate anteriorly. Pronotum one-fourth wider than long, equal in width at base and apex, widest at middle, median impression wider at base than at apex, lateral

impression deep, extending from middle of margin obliquely posteriorly around basal angles to hind margin, shallow on dorsal surface, hind angles tumid, not carinate, hind margin bisinuate, truncate medially, surface deeply, irregularly, but rather sparsely punctate, sparsely clothed with long, white, semi-erect pile; marginal and submarginal costae nearly straight, widely separated anteriorly, converging in front of base; scutellum about six times wider than long (exclusive of apical projection), surface shallowly impressed, finely reticulate. Elytra slightly wider than pronotum at base, sides shallowly constricted before middle, rounded to apex, abdomen exposed laterally except at basal sixth, base with a deep depression on each side of scutellum, each elytron with two faint, smooth carinae, one extending from humeral umbone to apical third, the other midway to suture, extending from near base to slightly beyond middle, surface rugose except for carinae, sparsely clothed with semi-erect white pile, suture weakly elevated apically. Prosternum with anterior projection shallowly emarginate apically, sides of projection between costae parallel, converging to apical point, sparsely clothed with long, semi-erect pile. Abdomen with first segment convex medially, all segments sparsely pilose throughout, slightly more dense laterally, apical segment evenly rounded, margins serrate. Legs black, tarsi shorter than tibiae, tarsal claw teeth short and blunt. Length, 10 mm.; width, 3 mm.

TYPE MATERIAL: Holotype, male, collected 80 kilometers north of Chihuahua City, Chihuahua, Mexico, June 30, 1947, in the collection of the American Museum of Natural History.

This species will key to *A. restrictus* Waterhouse in Fisher's (1928) key, but can be separated from that species by the male genitalia (fig. 42) and by the fact that each elytron has two costae, black color, differently shaped pronotum, conspicuous pile on under surface, and larger size. The genitalia appear to be similar to those of *A. costipennis* Fisher, but *tarahumarae* can be distinguished from that species by the deep median pronotal impression, concave front of head, and larger size.

The species is named after the primitive cave-dwelling Indians who inhabit the Sierra Madre of the state of Chihuahua (see Bradt, 1948).

***Agrilus restrictus* Waterhouse**

Agrilus restrictus WATERHOUSE, 1889, Biologia Centrali-Americana, Coleoptera, vol. 3, pt. 1, p. 119, pl. 7, figs. 7, 7a.

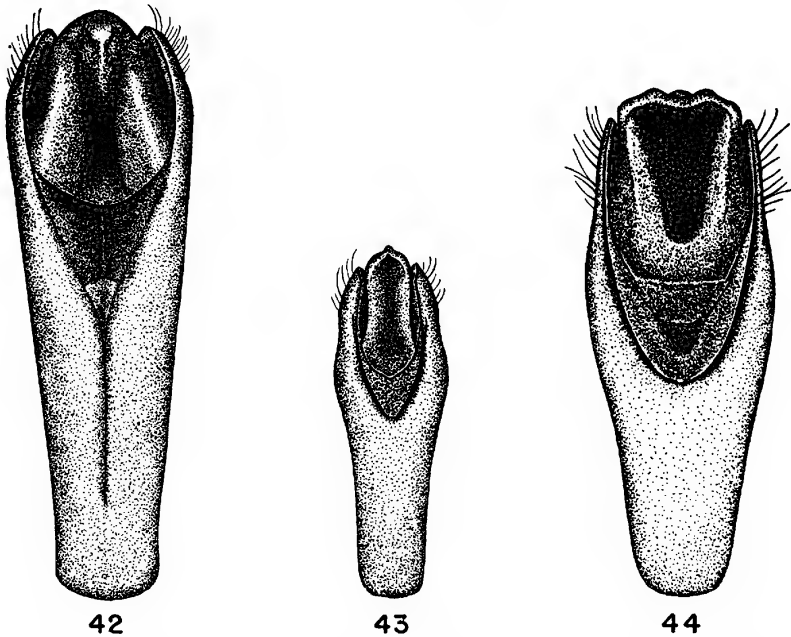
No specimens of this species were taken on the expedition, but a related species, *A. tarahumarae*, is herein described as new.

TYPE LOCALITY: Pinos Altos, Chihuahua, Mexico.

***Agrilus bradti*, new species**

Figure 43

Medium sized, elongate, narrow; head and pronotum cupreous, elytra black, with cupreous reflections, but not so brilliant



FIGS. 42-44. Male genitalia of *Agrilus*. 42. *A. tarahumarae* Cazier. 43. *A. bradti* Cazier. 44. *A. chihuahuae* Cazier.

as head and pronotum. Tips of elytra not prolonged, antennae serrate, beginning at fourth segment, tarsal claws with inner teeth turned inward and approximating each other but not touching at tips, pygidium without a projecting carina, lateral margins of first two abdominal segments distinct, head not concave and not deeply impressed, lateral margins of abdominal segments without pubescent spots but uniformly pilose, inner teeth on anterior tarsal claws distinctly separated at the tips, upper surface indistinctly but uniformly pilose, elytra not co-

state, male with anterior tarsal claws deeply cleft and inner tooth not broader than outer and acute at apex.

MALE: Head slightly convex in front, median impression very shallow at base and occiput, obliterated on vertex, vertex nearly flat between eyes, front slightly wider at top than at bottom, sparsely clothed with long white hair on apex, glabrous towards base, deeply, rugosely punctate throughout; epistoma transverse between antennae, anterior margin shallowly emarginate, rugosely punctate throughout; antennae not quite reaching middle of pronotum. Pronotum slightly wider than long, wider at apex than base, widest at apical sixth, side margins nearly straight from base to apical sixth, evenly rounded to apex, disc slightly convex, shallow median depression extending from base to apical third, sides with moderately deep depression extending obliquely from middle of margin to basal third, prehumeral carinae short, arcuate, and prominent, surface deeply, transversely, and arcuately rugose, sparsely clothed with short hairs, marginal and submarginal carinae sinuate, widely separated medially, narrowly converging but not meeting anteriorly, united at extreme base; scutellum wider than long, transversely carinate behind middle, densely reticulate. Elytra somewhat flattened above, base with a deep depression between humeral umbone and scutellum, suture slightly elevated on apical third, surface densely rugosely punctate throughout, apices acutely rounded, side margins shallowly emarginate before middle, serrate on apical third, carina between humeral umbone and margin prominent, surface sparsely clothed with inconspicuous hairs. Prosternum with anterior lobe prominent, shallowly emarginate medially, margins parallel between anterior coxae, only slightly expanded behind, apex pointed, surface sparsely clothed with long, semi-erect, white pile, densely punctate. Abdomen black, first segment flat or slightly concave medially, entire surface sparsely clothed with short, recumbent pile, slightly more numerous laterally, apical segment evenly rounded. Legs black, tarsi shorter than tibiae. Length, 6.5 mm.; width, 1.5 mm.

FEMALE: Unknown.

TYPE MATERIAL: Holotype, male, collected at Las Puenteas, Durango, Mexico, July 24, 1947, 7500 feet, in the collection of the American Museum of Natural History.

This species will run to *A. angelicus* Horn in Fisher's (1928) key, but can be distinguished from that species by its darker

color, male genitalia (fig. 43), by the nearly flat vertex of head, longer pronotum, by the differently converging marginal and submarginal pronotal carinae, and the fact that the head is not green.

The species is named in honor of Mr. George M. Bradt who has aided considerably in making available much material from Mexico.

***Agrilus chihuahuae*, new species**

Figure 44

Medium sized, robust, green throughout. Tips of elytra not prolonged, antennae serrate, beginning at fourth segment, tarsal claws simply cleft, inner portion feebly turned inward, tips distant, pygidium without a projecting carina, pronotum without a deep median depression, suture between first and second abdominal segments obliterated, scutellum not transversely carinate, unicolored above, second and third abdominal segments not prolonged at middle over the following segments, elytra without subsutural vittae.

MALE: Head slightly convex, front with shallow median depression, shallow and narrow on vertex, widening on front and V-shaped, sides of frontal depression elevated and impunctate, margins between eyes nearly parallel, front widest at about middle of eye, surface deeply rugosely punctate, sparsely clothed with semi-erect white hair, more dense in median depression; epistoma shallowly emarginate medially. Pronotum shallowly convex, basal umbones prominent, not carinate, lateral oblique impression deep, extending from middle of lateral margin back to umbone, surface deeply, densely, irregularly punctate, irregularly striate on basal half, especially on sides and back of disc, side margins almost straight, diverging slightly to anterior sixth, widest at anterior sixth, surface sparsely clothed with inconspicuous, semi-erect, white pile, not more dense laterally, marginal and submarginal carinae slightly sinuate, widely separated anteriorly, united at apical fourth, scutellum transverse, concave, strongly reticulate. Elytra slightly constricted in front of middle, basal depressions deep, side margins serrate on apical third, lateral carinae below umbone faintly indicated, suture slightly elevated on apical half, surface rugose, sparsely clothed with short inconspicuous hair. Prosternal projection shallowly emarginate, projection between coxae subparallel, rounded at

apex. Abdomen with first segment not flattened or concave medially, segments sparsely, inconspicuously pilose, punctures crescent shaped, last abdominal segment evenly rounded, tarsi slightly shorter than tibiae. Length, 8 mm.; width, 2.5 mm.

FEMALE: Unknown.

TYPE MATERIAL: Holotype, male, collected at Catarinas, Chihuahua, Mexico, July 26, 1947, 5800 feet. Seventeen paratopotypes, one paratype from Palos Colorados, Durango, Mexico, August 5, 1947, 8000 feet, and one paratype from Encino, Durango, Mexico, July 27, 1947, 6200 feet, all in the collection of the American Museum of Natural History.

This species keys to *A. obolinus* LeConte in Fisher's paper (1928), but is easily separated from that species by the male genitalia (fig. 44) and by its blue or green color. The male genitalia resemble those of *A. huachucae* Schaeffer, but *chihuahuae* can be separated from that species because it is unicolorous green or blue. The series of *A. chihuahuae* is rather uniform except for color which varies from dark blue to green.

***Agrilus huachucae* Schaeffer**

Agrilus huachucae SCHAEFFER, 1905, Bull. Brooklyn Inst. Mus., vol. 1, no. 7, p. 150.

The one specimen collected on the expedition does not differ from the specimens collected in Arizona and was taken on a species of oak (*Quercus* sp.). The vertex of the head and pronotum are brilliant cupreous red, and the elytra are black.

TYPE LOCALITY: Ramsey Canon, Huachuca Mountains, Arizona.

NEW RECORDS FOR MEXICO: Chihuahua: Catarinas, July 26, 1947, 5800 feet.

***Agrilus jacobinus* Horn**

Agrilus jacobinus HORN, 1891, Trans. Amer. Ent. Soc., vol. 18, pp. 314, 315.

This species was previously known only from California, and the present record greatly extends the distribution. The male genitalia are like the figures given by Fisher (1928), and the specimens fit the description.

TYPE LOCALITY: San Diego, California.

NEW RECORDS FOR MEXICO: Chihuahua: Samalayuca, June 24, 1947.

***Agrilus lacustris* LeConte**

Agrilus lacustris LeCONTE, 1859, Trans. Amer. Phil. Soc., vol. 11, p. 250.

Agrilus cuneus LeCONTE, 1866, Proc. Acad. Nat. Sci. Philadelphia, vol. 18, p. 384.

Agrilus pubiventris CROTCH, 1873, Proc. Acad. Nat. Sci. Philadelphia, vol. 25, p. 95.

Mexican specimens of this widespread species show considerable variation in color and size. The colors vary from green to cupreous green to bluish green, and the size varies from 5 to 7 mm. Series from the United States show more variability than the short series collected on the expedition.

TYPE LOCALITY: La Pointe, Wisconsin, Lake Superior.

RECORDED MEXICAN DISTRIBUTION: Baja California: San José del Cabo.

NEW RECORDS FOR MEXICO: Chihuahua: Samalayuca, June 24, 1947; Huejotitlan, July 21, 1947, 5700 feet.

***Agrilus chicomecoatlæ* Fisher**

Agrilus chicomecoatlæ FISHER, 1938, Sbornik Ent. odd. Nár Musea v Praze, vol. 16, no. 158, pp. 119, 120.

No specimens of this species were collected on the expedition.

TYPE LOCALITY: Tepehuanes, Durango, Mexico.

***Agrilus omecatli* Fisher**

Agrilus omecatli FISHER, 1938, Sbornik Ent. odd. Nár Mus. v Praze, vol. 16, no. 158, pp. 133, 134.

No specimens of this species were collected on the expedition.

TYPE LOCALITY: Tepehuanes, Durango, Mexico.

***Agrilus rockefelleri*, new species**

Medium sized, robust, head and pronotum cupreous red, elytra black, under surface black. Tips of elytra not prolonged, antennae serrate, beginning with fifth segment, tarsal claw cleft, teeth turned inward, but tips not quite touching.

FEMALE: Head convex, tumid between eyes, front wide, side margins sinuate, narrower at top of eyes, each eye bordered in front by a deep groove, front with a broad, deep, concave depression on upper half, obsolete on vertex, median depression narrowed anteriorly into a deep, longitudinal depression which extends almost to a deep transverse impression behind epistoma, deep depression causing lateral tumid areas, front

irregularly, deeply rugose, rugae vertical in median depression, glabrous except for few short white hairs behind epistomal suture; epistoma transverse, strongly, transversely carinate at base, two median longitudinal impressions in front of carina, anterior margin deeply emarginate medially; antennae extending beyond middle of pronotum. Pronotum one-sixth wider than long, strongly gibbous on anterior two-thirds, lateral oblique depressions shallow and connected behind gibbosity on disc, side margins slightly sinuate and divergent to apical sixth, evenly rounded to apex, surface deeply rugose, transversely at base, circularly on front of disc, irregular on lateral portions, glabrous throughout, prehumeral carinae faintly indicated and almost indistinguishable from rugae, marginal and submarginal carinae sinuate, widely separated anteriorly, united at basal third, surface between rugose; scutellum reticulate, strongly transverse, not impressed, disc with faint indication of carina. Elytra slightly sinuate before middle, widest behind middle, basal impressions deep, each elytron with a slightly longitudinally depressed area extending along suture from basal fourth to apex, suture strongly elevated from basal fourth to apex, discal surface irregularly rugose, transversely rugose along margins, subhumeral carinae evident, apices evenly rounded, strongly serrate, surface sparsely clothed with short, inconspicuous, decumbent hairs. Prosternal lobe shallowly but conspicuously emarginate anteriorly, margins of projection between coxae straight, oblique to apex, surface transversely rugose, sparsely clothed with long, suberect hairs. Abdomen with first segment convex medially, all segments uniformly sparsely pilose, last segment shallowly emarginate apically, pygidium with faint median carina not projecting. Legs black, tarsi shorter than tibiae. Length, 7 mm.; width, 2 mm.

MALE: Unknown.

TYPE MATERIAL: Holotype, female, collected 6 miles northeast of El Salto, Durango District, Durango, Mexico, August 10, 1947, 8500 feet. Paratype female collected at Palos Colorados, Durango, Mexico, August 5, 1947, 8000 feet.

The holotype and paratype are very similar, except that in the paratype the epistomal carina is slightly irregular, the front of the head is more tumid, the scutellum is shallowly depressed medially and slightly carinate basally, and the size is slightly larger (length, 8 mm.; width, 2.5 mm.).

This species runs to *A. strigicollis* Fall in Fisher's (1928) key, but can be separated from that species by its cupreous red head and pronotum, black elytra and under surface, by the carinate epistoma, gibbous pronotum, by having the scutellum not or shallowly depressed, and by having the sutural margins of the elytra strongly elevated from basal fourth. Superficially *rockefelleri* resembles *A. huachucae* Schaeffer, but can be separated from it by the characters used in Fisher's (1928) key, by the gibbous pronotum, deeply impressed and tumid front of head, carinate epistoma, and rugose sculpturing of the head and pronotum.



FIG. 45. Distribution of *Agrilus felix* Horn.

This species is named in honor of Dr. David Rockefeller whose interest and support are responsible for the gathering of the material on which this contribution is based.

***Agrilus felix* Horn**

Figure 45

Agrilus felix HORN, 1891, Trans. Amer. Ent. Soc., vol. 18, pp. 326, 327.

One female was taken sympatrically with a male and female of the closely allied *A. jacobinus*. They can be distinguished

by the long hairs on the sides of the pronotum and the distinct pubescent vitta on each elytron.

TYPE LOCALITY: Arizona, probably near Tucson.

RECORDED MEXICAN DISTRIBUTION: Baja California: San Julio (1); 45 miles north of San Ignacio (2), July 27, 1938; Catavina (3), June 19, 1938; Mesquital (4), July 28, 1938; 10 miles south of Punta Prieta (5), June 21, 1938.

NEW RECORDS FOR MEXICO: Chihuahua: Samalayuca (6), June 24, 1947.

***Agrilus ometauhtli* Fisher**

Agrilus ometauhtli FISHER, 1938, Sbornik Ent. odd. Nár Mus. v Praze, vol. 16, no. 158, p. 138.

No specimens of this species were collected on the expedition.

TYPE LOCALITY: Durango, Durango, Mexico.

GENUS THRINCOPYGE

KEY TO THE SPECIES OF THE GENUS *Thrincopyge*

- Pronotum without yellow or red maculations; elytra green or blue except for lateral margins which are bordered with orange from base to near apex; venter of thorax and abdomen without orange markings.....*marginata*
- Pronotum with yellow maculations; elytra either nearly completely orange or with three broad orange fasciae, margins not completely bordered with orange in fasciate specimens; venter of either or both thorax and abdomen with orange spots.....*alacris*

***Thrincopyge alacris* LeConte**

Thrincopyge alacris LeCONTE, 1858, Jour. Acad. Nat. Sci. Philadelphia, vol. 4, p. 17.

The Mexican specimens do not differ from series from Texas and Arizona. None of them show the extreme in maculation in which the elytra are almost entirely yellow.

TYPE LOCALITY: Arizona.

RECORDED MEXICAN DISTRIBUTION: Jalisco: Guadalajara. Guanajuato: Guanajuato.

NEW RECORDS FOR MEXICO: Chihuahua: 92 kilometers north of Chihuahua City, June 30, 1947.

***Thrincopyge marginata* Waterhouse**

Thrincopyge marginata WATERHOUSE, 1890, Ann. Mag. Nat. Hist., ser. 6, vol. 5, pp. 218, 219.

No specimens of this species were collected on the expedition. According to Waterhouse it is most closely related to *T. ambiens*, but differs by having no pronotal maculations, the elytral maculations broader, pronotum less evenly punctate, and the elytral apices more broadly truncate. From *T. laetifica* it can be distinguished by having the elytra bordered with red.

TYPE LOCALITY: Durango City, Durango, Mexico.

GENUS AGAEOCERA

KEY TO THE SPECIES OF THE GENUS *Agaeocera*

- Elytra strongly quadricostate, sutural costae short; pronotal disc usually with irregular impunctate areas.....*gigas*
Elytra with costae scarcely visible; pronotal disc usually punctate throughout.....*gentilis*

***Agaeocera gentilis* (Horn)**

Halecia gentilis HORN, 1885, Trans. Amer. Ent. Soc., vol. 12, p. 144.

This species appears to be more variable in Mexico than in Texas and Arizona. Six specimens from Florence, Arizona (F. H. Parker), are all about the same size and color, and a specimen from Olmos, Texas, agrees in these respects with the Arizona series except that the front of the head is more tumid. Of the three specimens collected in Mexico, one is large (15 mm.) and dark greenish blue, another from the same locality is small (11.8 mm.) and a light cupreous green, a third is 13 mm. and of an intermediate green color, only slightly darker than the Arizona specimens. In structural characters the Mexican specimens appear to be like the Arizona and Texas *gentilis* and for the present are placed under that species. The specimens were collected by sweeping annuals along the roadsides.

TYPE LOCALITY: Southwestern Texas and Coahuila, Mexico.

RECORDED MEXICAN DISTRIBUTION: Durango: Villa Lerdo. Coahuila.

NEW RECORDS FOR MEXICO: Coahuila: San Pedro de Colonias, August 20, 1947, 3700 feet; Guadalupe, August 23, 1947.

***Agaeocera gigas* (Gory)**

Anthaxia gigas GORY, in Castelnau and Gory, 1841, Histoire naturelle. . .des insectes coléoptères, buprestides. vol. 2, p. 2, pl. 1, fig. 1.

No specimens of this species have been seen from the area

covered by the expedition, and it seems to be a southern element that extends at least as far north as Durango.

TYPE LOCALITY: "Indes Orientale."

RECORDED MEXICAN DISTRIBUTION: Vera Cruz: Orizaba. Pal del Rio. Guerrero: Rio Papagaio, 1200 feet. Durango: Ventanas.

GENUS **PSILOPTERA**

KEY TO THE SPECIES OF *Psiloptera*

Pronotal disc sparsely punctate or impunctate; elytral maculations densely pilose.....*dilaticollis*
 Pronotal disc densely, irregularly, deeply punctate; elytral maculations sparsely pilose.....*drummondi webbi*

Psiloptera dilaticollis Waterhouse

Psiloptera dilaticollis WATERHOUSE, 1882, Biologia Centrali-Americana, Coleoptera, vol. 3, pt. 1, p. 11.

This Neotropical species has been found to extend as far north as southern Chihuahua. Specimens collected on the expedition were taken on acacia.

TYPE LOCALITY: Mexico, Hacienda de Bleados, San Luis Potosi, Sierra de San Miguelito.

RECORDED MEXICAN DISTRIBUTION: Durango: Villa Lerdo.

NEW RECORDS FOR MEXICO: Chihuahua: Salaices, July 23, 1947, 5200 feet. Durango: Yurbanis, Cuencame District, August 19, 1947, 6700 feet; Cuencame, August 19, 1947, 5500 feet; 6 miles northeast of El Salto, August 10, 1947. Coahuila-La Gloria, south of Monclova, August 24, 1947, 3300 feet.

Psiloptera drummondi webbi LeConte

Figure 46

Psiloptera drummondi webbi LECONTE, 1858, Proc. Acad. Nat. Sci. Philadelphia, vol. 10, p. 66.

This common southwestern species was collected in two localities in southern Chihuahua and does not differ from series from Texas and Arizona or from several specimens from Sonora. One small male specimen approaches *drummondi*, but can be separated from that subspecies by its blue color.

TYPE LOCALITY: Ures (1), Sonora, Mexico.

NEW RECORDS FOR MEXICO: Chihuahua: Kilometer 36,

Santa Barbara-Ojito Road (2), August 17, 1947, 6900 feet (G. M. Bradt); Santa Barbara (3), August, 1947, 6200 feet (G. M. Bradt). Sonora: Arispe (4).

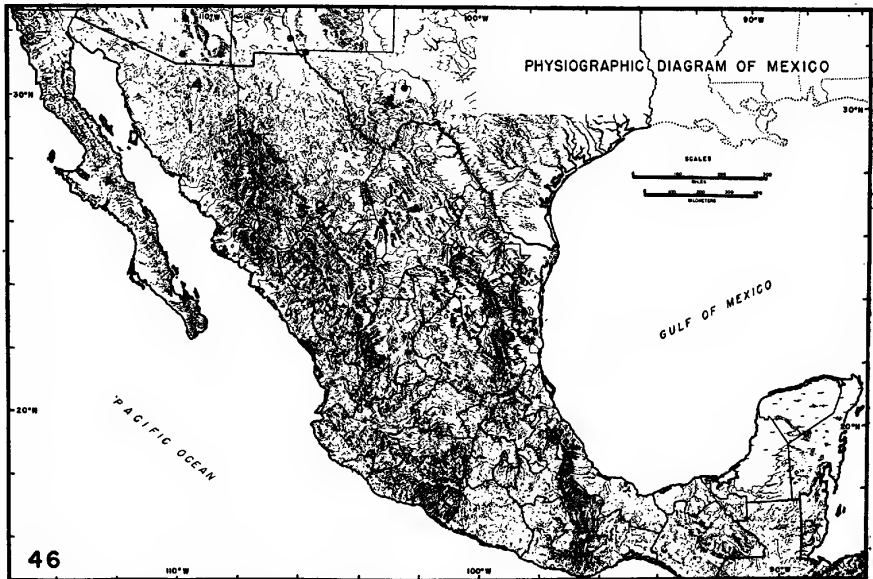


FIG. 46. Distribution of *Psiloptera drummondi webbi* LeConte.

GENUS *CHRYSOBOTHRIS*

KEY TO THE SPECIES OF *Chrysobothris*¹

1. Elytra clothed with conspicuous hairs.....*lixa*
- Elytra not clothed with hairs.....2
2. Lateral margins of last abdominal sternite serrate.....6
- Lateral margins of last abdominal sternite not serrate.....3
3. Elytra strongly, longitudinally costate and with distinct discal foveae; color brown to dull green.....4
- Elytra not costate and without distinct discal foveae; color brilliant green or bluish green.....*socialis*
4. Scutellum long, acuminate posteriorly; basal elytral margins angulate....5
- Scutellum short, triangular, not acuminate posteriorly; basal elytral margins evenly rounded.....*costifrons*
5. Abdominal sternites with distinct, more or less elevated, smooth, lateral callosities; first sutural costa bent inward at apex, not terminating in a long, acute spine.....*merkelii*

¹ This key does not include *C. inaequalis*, *C. foveata*, and *C. densa*, as no specimens were available for study.

- Abdominal sternites without lateral callosities; first sutural costa extending straight back at apex, terminating in a prominent, acute spine *acutipennis*
- 6. Anterior prosternal margin prominently lobed medially 10
- Anterior prosternal margin straight or slightly arcuate, not lobed medially 7
- 7. Elytra without cupreous or gold-colored foveae; disc of pronotum longitudinally sulcate or flattened medially 8
- Each elytron with four cupreous or gold-colored foveae; disc of pronotum even, without flattened or sulcate area 9
- 8. Anterior margin of clypeus with a median incision at base of emargination; disc of pronotum without impunctate longitudinal carinae on either side of median depression *femorata*
- Anterior margin of clypeus shallowly emarginate, without incision; disc of pronotum with impunctate longitudinal carinae on either side of median depression *ludificata*
- 9. Anterior margin of prosternum slightly arcuate medially; anterior clypeal margin deeply emarginate *basalis*
- Anterior margin of prosternum straight; anterior clypeal margin shallowly emarginate *octocola*
- 10. Elytra green or blue, with or without black or purplish spots or fasciae *purpureoplagiata*
- Elytra black, brown, or cupreous brown, maculations red or cupreous or absent 11
- 11. Vertex of head, anterior median portion of pronotum, and humeral angles of elytra brilliant red *acaciae*
- Not with above combination of markings 12
- 12. Lateral reflexed pronotal margins brilliant red or cupreous red; elytral costae faintly indicated *lateralis*
- Lateral reflexed pronotal margins brown or black; elytra with two or three evident costae *prosopidis*

***Chrysobothris lixa* Horn**

Chrysobothris lixa HORN, 1886, Trans. Amer. Ent. Soc., vol. 13, pp. 99, 101, pl. 5, figs. 159–163.

One rather large female of this species was collected in Chihuahua.

TYPE LOCALITY: Texas.

RECORDED MEXICAN DISTRIBUTION: Baja California: Calamajuet. Sonora: Northern.

NEW RECORDS FOR MEXICO: Chihuahua: Santa Barbara, May 15, 1948, 6200 feet (G. M. Bradt).

***Chrysobothris socialis* Waterhouse**

Chrysobothris socialis WATERHOUSE, 1887, Biologia Centrali-Americana, Coleoptera, vol. 3, pt. 1, p. 39, pl. 3, figs. 10, 10a.

No specimens of this species were collected on the expedition. Two female specimens from Sinaloa, Mexico, agree in most features with *socialis*, but they are of a brighter green color; the front of the head does not have a transverse ridge in the center, and the apical abdominal sternite is uniformly shallowly emarginate rather than bisinuate.

TYPE LOCALITY: Ventanas, Durango, Mexico, 2000 feet.

NEW RECORDS FOR MEXICO: Sinaloa.

***Chrysobothris costifrons* Waterhouse**

Chrysobothris costifrons WATERHOUSE, 1887, *Biologia Centrali-Americana*, Coleoptera, vol. 3, pt. 1, p. 45, pl. 3, fig. 19.

The one specimen, a female, from the area covered by the expedition does not differ from those specimens collected in Arizona.

TYPE LOCALITY: Northern Sonora, Mexico.

RECORDED MEXICAN DISTRIBUTION: Guerrero: Amula. Oaxaca: Oaxaca. Vera Cruz: Orizaba.

NEW RECORDS FOR MEXICO: Chihuahua: Santa Barbara, May 26, 1948, 5800 feet (G. M. Bradt).

***Chrysobothris merkelii* Horn**

Chrysobothris merkelii HORN, 1886, *Trans. Amer. Ent. Soc.*, vol. 13, pp. 104, 106, 107, pl. 6, figs. 183-187.

This species is rather constant in markings, size, and shape, and the only variation in color is in the specimen from Sonora which is slightly more cupreous than are most specimens from Texas, Arizona, and California.

TYPE LOCALITY: Texas.

RECORDED MEXICAN DISTRIBUTION: Baja California: San Felipe.

NEW RECORDS FOR MEXICO: Baja California: between San José del Cabo and Triunfo, 1911 (Albatross expedition). Sonora: Agua Prieta, August 18, 1949, 3700 feet (G. M. Bradt). Chihuahua: Santa Barbara, May 5, 1948, 6200 feet (G. M. Bradt); Terrero, May 25, 1948, 5500 feet (G. M. Bradt).

***Chrysobothris acutipennis* Chevrolat**

Figure 47

Chrysobothris acutipennis CHEVROLAT, 1835, *Coléoptères du Mexique*, fasc. 8, p. 190.

No specimens of this species were collected on the expedition.

TYPE LOCALITY: Tuspan (Tuxpam) (1), Mexico.

RECORDED MEXICAN DISTRIBUTION: Orizaba: Orizaba (2). Cerro de Plumas. Durango: Ventanas (3). Yucatan: Temax. (4). Baja California: San José del Cabo (5). Vera Cruz: Almolonga (6).

Also British Honduras, Guatemala, Nicaragua, Panama, Venezuela, Guiana, and Costa Rica.

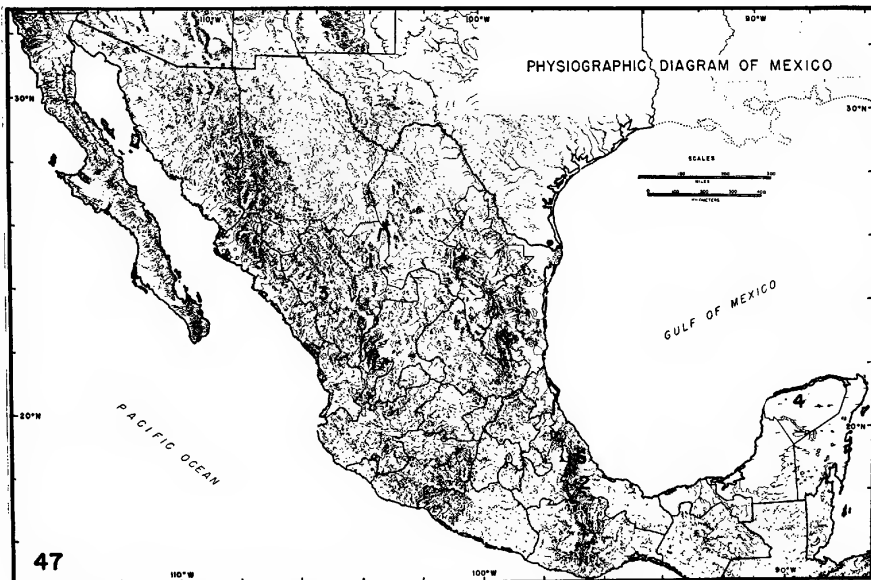


FIG. 47. Distribution of *Chrysobothris acutipennis* Chevrolat.

***Chrysobothris femorata* (Olivier)**

Buprestis femorata OLIVIER, 1790, Entomologie, vol. 2, pp. 47, 48, pl. 11, fig. 121.

One male and one female specimen of this extremely variable and widespread species were taken in the area covered by the expedition. The male genitalia differ slightly from those of other specimens examined in that the right side of the lateral lobes extends farther beyond the tip of the median lobe, the recurved spine on the ventral surface is in a deeper groove and is not visible from above. The female is more deeply and densely sculptured above, the pronotum is longitudinally more deeply depressed, and the color is more brilliant. Both specimens appear

to be within the range of variability of *femorata* from the United States. When additional material is available, *C. foveata* Waterhouse (Zacatecas), *C. chactas* Castelnau and Gory (Puebla and Jalapa), and *C. inaequalis* Waterhouse (Chihuahua) may be shown to be synonyms.

TYPE LOCALITY: Georgia.

NEW RECORDS FOR MEXICO: Chihuahua: 1 mile east of La Saucedá, July 21, 1947, 7000 feet; San Francisco del Oro, September 16, 1947 (G. M. Bradt).

***Chrysobothris ludificata* Horn**

Chrysobothris ludificata HORN, 1886, Trans. Amer. Ent. Soc., vol. 13, pp. 85, 88, 89, pl. 3, figs. 80-84.

Three specimens of this rather widespread species were collected on western yellow pine (*Pinus ponderosa* Lawson).

TYPE LOCALITY: Colorado.

NEW RECORDS FOR MEXICO: Chihuahua: summit northeast of San José Babicora, July 4, 1947, 7700 feet. Durango: Coyotes, Durango District, August 8, 1947, 8300 feet.

***Chrysobothris basalis* LeConte**

Chrysobothris basalis LECONTE, 1858, Proc. Acad. Nat. Sci. Philadelphia, vol. 10, p. 68.

Chrosybothris multistigmata KERREMANS, 1892, Mem. Soc. Ent. de Belgique, vol. 1, p. 217.

Most closely related to *C. octocola* LeConte, but easily separated from it as given in the discussion of *octocola*. No specimens from the area covered have been examined.

TYPE LOCALITY: Laredo to Ringgold Barracks, Texas.

RECORDED MEXICAN DISTRIBUTION: Fordale. Durango: Ventanas, 2000 feet. Puebla: Puebla; Matamoros Izucar; Atlixco. Vera Cruz: Vera Cruz; Córdoba; Jalapa. Oaxaca: Almolonga; Oaxaca; Tehuantepec. Guerrero: Chilpancingo. Yolos.

South into Guatemala and El Salvador.

***Chrysobothris octocola* LeConte**

Figure 48

Chrysobothris octocola LECONTE, 1858, Proc. Acad. Nat. Sci. Philadelphia, vol. 10, p. 67.

Most closely related to *C. basalis* LeConte, but easily separated from it by its more robust shape, larger and more brilliant elytral maculations, and by having the posterior femora not dentate on outer margin. Collected on mesquite (*Prosopis juliflora* Schwarz).

TYPE LOCALITY: Colorado River near Gila, Arizona.

RECORDED MEXICAN DISTRIBUTION: Tamaulipas: Reynosa (1), May 20, 1895. Morelos: Puente de Ixtla (2), July, 1900. San Luis Potosí: San Luis Potosi (3). Baja California: Santa Rosa (4); 10 miles south of Cataviña (5), July 29, 1938; 7 miles

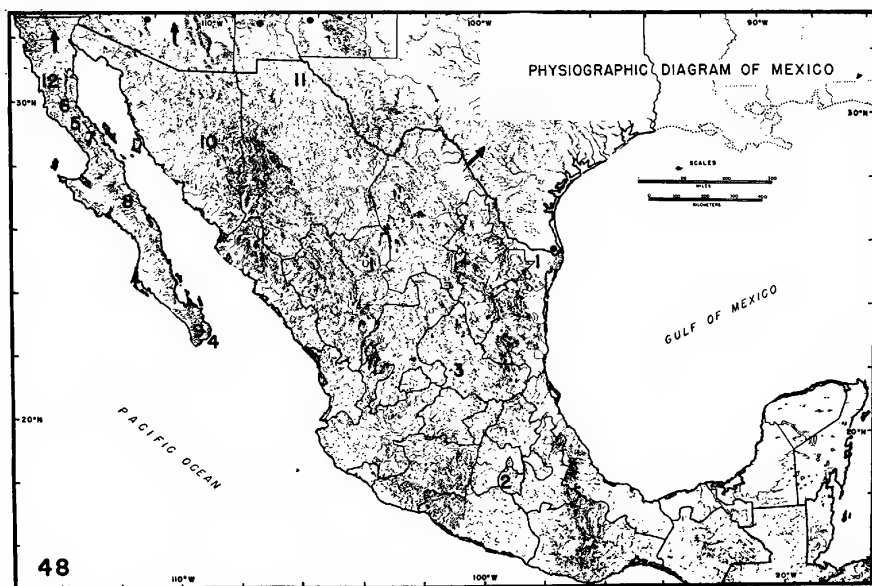


FIG. 48. Distribution of *Chrysobothris octocola* LeConte.

south of El Mármol (6), June 18, 1938; Chapala Dry Lake (7), June 21, 1938; 45 miles north of San Ignacio (8), July 27, 1938; 15 miles north of San Ignacio (8), June 24, 1939; 19 miles east of Rosario (12); Cataviña (5), June 19, 1938; Miraflores (9), June 8, 1938. Sonora: Alamos (10).

NEW RECORDS FOR MEXICO: Chihuahua: Samalayuca (11), June 24, 1947.

Chrysobothris purpureoplagiata Schaeffer

Figure 49

Chrysobothris purpureoplagiata SCHAEFFER, 1904. Jour. New York Ent. Soc., vol. 12, pp. 206, 207.

Specimens of this variable species from Chihuahua differ from those examined from Baja California and Arizona by being bi-colored. The heads and pronota are either brilliant cupreous or red, while the elytra are either green or bluish green. Both specimens have a median black elytral vitta that extends from near the base almost to the apex, and the clypeus is more shallowly emarginate. The male genitalia, anterior tibiae of male, apical abdominal segment, size, shape, and sculpturing are as in *purpureoplagiata*. In view of the great variability recorded for *purpureoplagiata* and the fact that only two specimens are

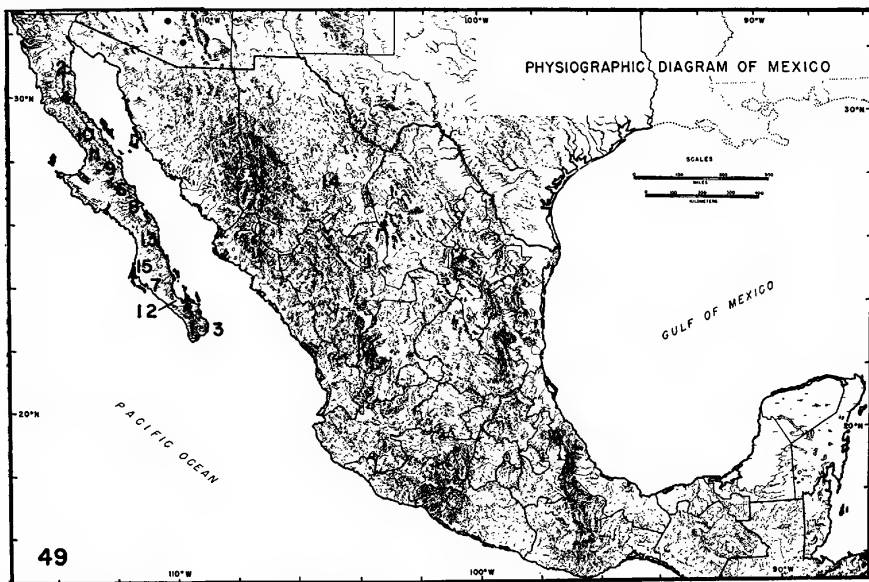


FIG. 49. Distribution of *Chrysobothris purpureoplagiata* Schaeffer.

available from Chihuahua, it does not seem advisable to consider them as deserving of subspecific status. One paratopotype of *purpureoplagiata* in the collection of the American Museum of Natural History is green throughout, lacking any indication of the vitta that is present in most specimens.

TYPE LOCALITY: Florence, Arizona.

RECORDED MEXICAN DISTRIBUTION: Baja California: El Taste (1); San Felipe (2); Santa Rosa (3); 7 miles south of El Mármol (4), June 18, 1938; Triunfo (5), July 13, 1938; 15 miles north of San Ignacio (6), June 24, 1938; 15 miles north of El Refugio (7), July 4, 1938; 25 miles south of Santa Rosalia

(8), July 25, 1938; 14 miles south of El Arco Mines (9), June 23, 1938; 45 miles north of San Ignacio (6), July 27, 1938; 10 miles south of Punta Prieta (10), June 21, 1938; San Domingo (15), July 19, 1938; Mesquital (11), July 28, 1938; 15 miles west of La Paz (12), July 5, 1938; 5 miles south of San Miguel (13), July 20, 1938.

NEW RECORDS FOR MEXICO: Chihuahua: 25 miles southwest of Camargo (14), July 14, 1947; 20 miles southwest of Camargo (14), July 13, 1947, 4500 feet.

***Chrysobothris acaciae* Knull**

Chrysobothris acaciae KNULL, 1936, Ent. News, vol. 47, pp. 105, 106.

Similar to *C. axillaris* Horn, but differing from it by having the large coppery-red spot on the head and pronotum and the anterior tibiae coppery red. Collected on Cat's Claw (*Acacia constricta* Benth).

TYPE LOCALITY: Davis Mountains, Texas.

NEW RECORDS FOR MEXICO: Chihuahua: 20 miles southwest of Camargo, July 13, 1947, 4500 feet; Santa Barbara, May 15, 1948, 6200 feet (G. M. Bradt); Salaces, May 15, 1948, 5200 feet (G. M. Bradt); Terrero, May 26, 1948, 5500 feet (G. M. Bradt); between Parral and Santa Barbara, May 13, 1948, 5800 feet (G. M. Bradt).

***Chrysobothris lateralis* Waterhouse**

Chrysobothris lateralis WATERHOUSE, 1887, Biologia Centrali-Americana, Coleoptera, vol. 3, pt. 1, p. 47, pl. 3, fig. 20.

This species resembles *C. prosopidis* Fisher, but can be separated from it by the faintly indicated elytral carinae, reddish lateral pronotal margins, and by the male genitalia. It is probably more closely related to *C. debilis* LeConte, but can be distinguished by the brilliant red lateral pronotal margins and by lacking the greenish or bluish black elytral markings.

TYPE LOCALITY: Northern Sonora, Mexico (probably Arizona, according to Fisher, 1942, p. 107).

NEW RECORDS FOR MEXICO: Chihuahua: Samalayuca, June 24, 1947.

***Chrysobothris prosopidis* Fisher**

Chrysobothris prosopidis FISHER, 1942, U. S. Dept. Agr. Misc. Publ., no. 470, pp. 70, 71, figs. 22, 113 f.

Closely related to *C. debilis* LeConte, but distinguishable from that species by the lack of the greenish and bluish elytral markings, more evident elytral costae, and by the male genitalia. Collected on Cat's Claw (*Acacia constricta* Benth).

TYPE LOCALITY: Sabino Canyon, Arizona.

NEW RECORDS FOR MEXICO: Chihuahua: Terrero, May 26, 1948, 5500 feet (G. M. Bradt); Santa Barbara, May 6, 1947, 6200 feet (G. M. Bradt); Salaices, May 15, 1948, 5200 feet (G. M. Bradt); Parrall, May 13, 1948, 5800 feet (G. M. Bradt).

***Chrysobothris inaequalis* Waterhouse**

Chrysobothris inaequalis WATERHOUSE, 1887, Biologia Centrali-Americana, Coleoptera, vol. 3, pt. 1, p. 42, pl. 3, fig. 13.

No specimens of this species were taken on the expedition. It appears to be closely allied to *C. femorata* (Olivier).

TYPE LOCALITY: Pinos Altos, Chihuahua, Mexico.

***Chrysobothris densa* Waterhouse**

Chrysobothris densa WATERHOUSE, 1889 Biologia Centrali-Americana, Coleoptera, vol. 3, pt. 1, p. 184.

No specimens of this species were taken on the expedition.

TYPE LOCALITY: Ciudad in Durango.

***Chrysobothris foveata* Waterhouse**

Chrysobothris foveata WATERHOUSE, 1887, Biologia Centrali-Americana, Coleoptera, vol. 3, pt. 1, p. 41.

No specimens of this species were taken on the expedition.

TYPE LOCALITY: Zacatecas, Mexico.

GENUS MELANOPHILA

KEY TO THE SPECIES OF *Melanophila*

Elytra without maculations.....*atra*
Elytra with yellow maculations.....*notata elegans*

***Melanophila atra* Gory**

Melanophila atra GORY, in Castelnau and Gory, 1841, Histoire naturelle. . .des insectes coléoptères, Suppl., vol. 4, p. 74, pl. 13, fig. 73.

No specimens of this species were taken on the expedition.

TYPE LOCALITY: Cayenne.

RECORDED MEXICAN DISTRIBUTION: Ciudad in Durango, 800 feet.

Melanophila notata elegans Sloop

Melanophila notata elegans SLOOP, 1937, Univ. California Publ. Ent., vol. 7, no. 1, p. 7, fig. 23.

This beautiful subspecies can be distinguished from *M. notata* (Castelnau) by its more robust and less densely punctate pronotum and by the yellow markings which resemble an inverted block A on each elytron. It can be separated from *M. atra* by the yellow elytral markings.

TYPE LOCALITY: Douglas, Arizona.

NEW RECORDS FOR MEXICO: Chihuahua: summit northeast of San José Babicora, July 4, 1947, 7700 feet.

GENUS **CINYRA**

Cinyra aequalis Waterhouse

Cinyra aequalis WATERHOUSE, 1889, Biologia Centrali-Americana, Coleoptera, vol. 3, pt. 1, p. 174.

No specimens of this genus were taken on the expedition.

TYPE LOCALITY: Ventanas, Durango, Mexico.

GENUS **HIPPOMELAS**

KEY TO THE SPECIES OF *Hippomelas*

1. Pronotal disc with strongly defined, irregular, impunctate callosities, impressed areas either punctate or impunctate; form robust. 2
- Pronotal disc without strongly defined callosities; surface deeply, irregularly punctate; form cuneate. *sphenica*
2. Elytra costate; hind pronotal margins feebly sinuate. *planicosta*
- Elytra not costate; hind pronotal margins strongly sinuate. *caelata*

Hippomelas caelata (LeConte)

Figure 50

Chalcophora caelata LECONTE, 1858, Proc. Acad. Nat. Sci. Philadelphia, vol. 10, p. 67.

Series of this rather common species were taken on *Acacia* in a number of localities.

TYPE LOCALITY: Ures (1), Sonora, Mexico.

RECORDED MEXICAN DISTRIBUTION: Northwestern Mexico; Lower California (8).

NEW RECORDS FOR MEXICO: Chihuahua: Salaices (4), July 23, 1947, 5200 feet; Kilometer 36, Santa Barbara-Ojito Road (5), August 17, 1947, 6900 feet (G. M. Bradt); Chihuahua City (3); Santa Barbara (4), August 17, 1947 (G. M. Bradt). Durango: Yerbánis (7), Cuencame District, August 19, 1947, 6700 feet; Pedricena (6), August 19, 1947, 4500 feet. Sonora: Fronteras (2), August 18, 1949, 3800 feet (G. M. Bradt).



FIG. 50. Distribution of *Hippomelas caelata* (LeConte).

***Hippomelas sphenicus* (LeConte)**

Figure 51

Buprestis sphenicus LECONTE, 1854, Proc. Acad. Nat. Sci. Philadelphia, vol. 7, p. 83.

Only one specimen of this rather widely distributed species was taken on the trip, and it is indistinguishable from the specimens from Arizona and Sonora.

TYPE LOCALITY: Between Laredo and Ringgold Barracks, Texas.

RECORDED MEXICAN DISTRIBUTION: Coahuila: Monclova (5). Durango: Villa Lerdo (6). Sonora: Alamos (3).

NEW RECORDS FOR MEXICO: Coahuila: La Gloria, south of

Monclova (4), August 24, 1947, 3300 feet. Sonora: Copete Mine, 30 miles east of Carbo (2); Arispe (1).

Hippomelas planicosta (LeConte)

Chalcophora planicosta LeConte, 1858, Proc. Acad. Nat. Sci. Philadelphia, vol. 10, p. 66.

No specimens of this species were taken on the expedition.

TYPE LOCALITY: "San Diego trip."

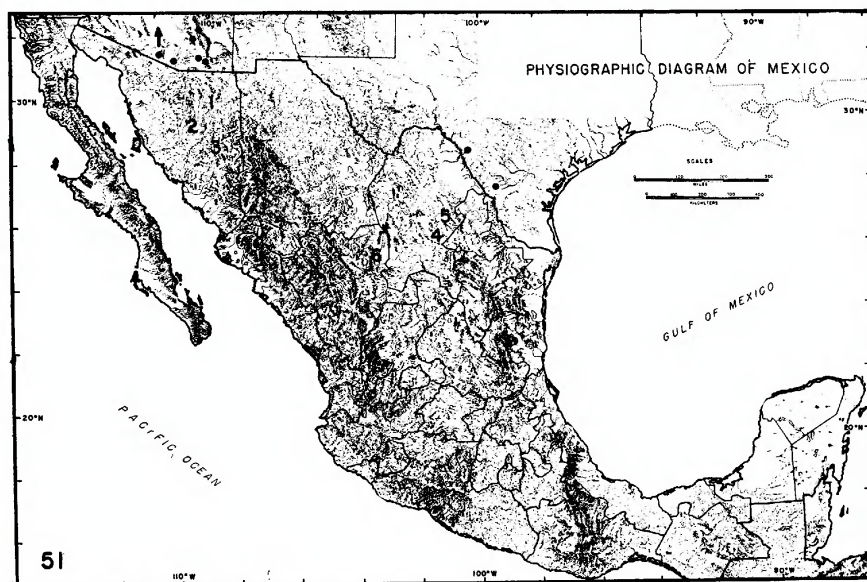


FIG. 51. Distribution of *Hippomelas sphenicus* (LeConte).

RECORDED MEXICAN DISTRIBUTION: Sonora: northern Sonora. Durango: Villa Lerdo. Baja California: Pond Island Bay; San Marcos Island.

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